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The Nonclimbing Species
of the Genus *Psychotria* (Rubiaceae)
in New Guinea and
the Bismarck Archipelago

S. H. SOHMER



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THE BISMARCK ARCHIPELAGO

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S.H.S.

Abstract

THIS REVISION of the nonclimbing species of *Psychotria* (Rubiaceae) in New Guinea and the Bismarck Archipelago is based upon extensive herbarium studies and nearly a year of fieldwork. There are 115 species and 12 varieties recognized and treated. Fifty-five of the species and 6 of the varieties are recognized as new, and there are 5 new combinations, 1 new name, and 24 new synonymies. There are also 51 lectotype and 4 neotype designations. This is considered a compendium and represents the first comprehensive treatment of the genus available for the area, with keys, specimen citations, and illustrations of nearly all of the taxa. It is intended as a foundation for further work with the genus in the geographical area that is a major center of diversity for *Psychotria* in the Old World Tropics in general, and the Malesian Region in particular.

Introduction

IN 1979 I HAD THE OPPORTUNITY to work with the Division of Botany, Office of Forests, in Lae, Papua New Guinea. During this time I was charged with creating some sort of order out of the taxonomic chaos of *Psychotria* L. in New Guinea. I was able to conduct extensive fieldwork and study the numerous specimens that had accumulated at Lae as well as examine type material borrowed from other herbaria. When the time came to depart Lae I had a typescript in which some 140 taxa (not including the climbing species of the genus) were treated, of which about half were potentially new to science. Parts of the next 4 years were spent testing the species concepts I had developed. I avoided creating nearly 20 superfluous names by locating additional type material and relating such material to taxa I had recognized but whose original descriptions were insufficient to match them with the published record. The list of new taxa was further reduced by redefinition of my species concepts and testing of the key constructed to accommodate the taxa.

A major problem related to this study but not resolved here is that of sorting out the relationships between *Psychotria* from New Guinea and the Bismarck Archipelago and *Psychotria* from adjacent portions of Indonesia and the Philippines. I examined *Psychotria* material from the latter areas at the Rijksherbarium at Leiden in 1982 and learned that 10–15 taxa recognized for Papuaasia (New Guinea and associated islands) may also be represented in Malesia (Malaysia, Indonesia, and the Philippines, as well as New Guinea). Determining relationships between taxa in the 2 areas should not be as difficult for *Psychotria* as for other complex taxa, as *Psychotria* demonstrates a tendency to rapid speciation. It seems that geographical isolation leads relatively rapidly to the formation of new entities in the genus in many cases. One can see this in New Guinea species in which gross morphological changes accompany geographic dispersal (*Psychotria diplococca* Lauterbach & Schumann and *P. wichmannii* Valetton are examples). A good understanding of the relationships can come only after a thorough study of the entire genus in Malesia. The sheer number of taxa and the inability to de-

termine a priori the significance of a given morphological character in a series of taxa over widely separated geographic areas makes it virtually impossible to state relationships in *Psychotria* with absolute certainty. Basic analysis is years off and will require a great deal of fieldwork, probably the development of evidence from phytochemical analyses, and perhaps other studies. Because of the enormity of the task, I consider it worthwhile to bring forth the results of this study at this time.

There are at least 115 species and, including infraspecific categories, 127 taxa in New Guinea and the Bismarck Archipelago, including a few from Bougainville in the North Solomon Islands, although Solomon Islands taxa in general have not been treated. I say "at least . . . 127 taxa" because fieldwork has by no means uncovered all taxa in Papua New Guinea and *Psychotria* has never been specifically searched for in Irian Jaya, the western portion of the island of New Guinea. Many taxa of *Psychotria* probably wait to be discovered in Irian Jaya, and I estimate that at least 200 and perhaps up to 300 taxa of the genus (including the vine, or climbing species) exist in New Guinea and the Bismarck Archipelago. The taxa in the Solomon Islands will be treated separately, as they are mostly distinct and relate to a few species found in the offshore New Guinea islands, from Manus through the Bismarck Archipelago. This contribution concerns all presently known nonclimbing species in New Guinea and the Bismarck Archipelago and provides for each species a means by which it can be compared to the others. (However, several taxa have been designated in the past as *Uragoga* Baill. or *Cephaëlis* Sw. that probably do not belong with *Psychotria*.) Further work will amplify the subgeneric relationships of these species.

The genus is extremely complex in this area. This applies not only to the number of taxa present, but also to the rich variation in morphological features. Gross variations in certain morphological features are infraspecific in some cases; in others, relatively minor variation (at least as seen on herbarium sheets) can be quite significant and will denote interspecific relationships. As no simple test for determining specific relationships in *Psychotria* exists at this time, one has only morphological characters with which to deal and one's personal conceptualization of the significance of the variation in such characters. Fieldwork is essential to understanding the species. There were several instances wherein I had lumped taxa in the herbarium until I had the opportunity to see them in the field and recognized that there were significant differences between such taxa. For example, I had placed specimens of *Psychotria damasiana*, sp. nov., with those of *P. leptothyrsa* Miquel until I saw representatives of both in the field and was startled at the differences in characters that did not appear on herbarium sheets, such as overall habit, morphology, flushing color of the stipules and young leaves, and the pattern of fruit ripening.

Subgeneric Relationships

The enormity and complexity of the genus *Psychotria* continues to baffle, exasperate, and impress those who work with it, certainly me. The recent tendency among workers with this group has been to submerge many of the segregate genera that have been created on one or more characteristics (ruminant endosperm, condensed inflorescence with or without associated bracts, larger than average size of calyx, etc.). This is so because new information has revealed too many intergradations in nearly all these characteristics to permit clear segregation. Steyermark (1972) has, I believe, succinctly shown that the segregate genus *Cephaëlis* cannot be separated from *Psychotria* in the neotropics. Who, upon seeing for the first time a taxon with an inflorescence enclosed by colorful and enlarged bracts, and with each flower in that inflorescence associated with a bracteole, would imagine that it is related to *Psychotria* sensu stricto? With the appropriate extinctions of intermediate forms such segregation would appear practical. Whereas before the accumulation of data it was easy and appropriate for workers to identify the spectacular extremes of what now appear to be morphological trends, to describe them, and then file them away, it is now much more difficult to do so. A clearer concept of intergeneric and subgeneric relationships in *Psychotria* will require aid from the newest technologies. I have not attempted to provide a summary of infrageneric relationships in the New Guinea area *Psychotria* here. The diversity present in New Guinea is still not fully understood, or even fully described. An infrageneric treatment constructed on a wider regional base will be much more valuable.

The stipular form probably represents the most significant characteristic in the classification of nonclimbing *Psychotria* and the stipules are usually the least known. They are often absent from herbarium specimens because they have fallen off the flowering or fruiting branches, which are those very branches of course that are primarily collected. Furthermore, even if sterile twigs are present on a specimen, they are not in the best form for study. Seeing stipules in the field allows one to observe the various developmental stages, from bud to opening, which allows a much clearer picture of the nature of this plant part. In New Guinea taxa, stipules are of several basic types: calyprate/imbricate, valvate, and tubular. The species with calyprate/imbricate stipules are probably separable into an infrageneric grouping of some kind.

At present, I recognize *Psychotria* in the broad sense and included within this concept are all taxa that have been previously assigned in Malesia to *Grumilea* and *Cephaëlis*. Although one can recognize taxa in New Guinea with ruminant endosperm (the principal characteristic of *Grumilea*), this characteristic does not hold on a broader geographic basis. I view *Chasalia* as distinct, the species of

this genus being easily separable in the field by their more herbaceous habit and inflorescence morphology. Species groups in New Guinea will be based upon the following characteristics: (1) habit (climbing, nonclimbing); (2) stipular form; (3) inflorescence structure (sessile, nonsessile); (4) inflorescence branching patterns (monochotomous, trichotomous, etc.); (5) fruit color; (6) stipule apex (cleft/not cleft); and (7) leaf shape, morphology, structure.

The key provides insight into what groups of species are related, but the species are treated alphabetically in the text. This treatment is intended to serve as a foundation for future work.

Morphological Characters and Their Taxonomic Significance

Habit

I have treated the nonclimbing, or nonscrambling, taxa of *Psychotria* only. There are several taxa described as scrambling shrubs whose derivation from the shrub habit is easy to visualize, but I consider the true climbing habit a major evolutionary step within the genus, particularly wherein specialized, adventitious, holdfast roots have developed. Furthermore, I believe that the morphological resemblance between the genus *Hydnophytum* (aside from the tuberous stems) and *Psychotria* is not due to mere coincidence but to the fact that the former genus is derived from the latter via a climbing species. Myrmecophily, well advanced in *Hydnophytum*, is found in several New Guinea *Psychotria*.

In Papuasias the habit of the nonclimbing species ranges from unbranched plants 1–2 m tall (e.g., *P. reflexapedunculata*, sp. nov.), through small, profusely branching shrubs less than 1 m tall, to small or medium-size trees up to 25 m high. The vast majority of the taxa are shrubby plants 1–4 m tall and occur from sea level to the alpine zone [e.g., *P. chonantha* (Gilli) Sohmer, nov. comb.]. Most New Guinea *Psychotria* are substory plants often found around forest gaps and stream and river courses. In the lowland alluvial forests of New Britain several of the species sometimes constitute a significant proportion of the subcanopy vegetation.

Stipules

The stipules in Papuan *Psychotria* come in several forms but I have assigned them to 2 functional categories: (1) valvate, and (2) calyprate/imbricate. Valvate stipules open like the 2 valves of a clam and are usually less than 4× longer than broad. Their margins may or may not be fused. Calyprate stipules are hoodlike,

with the young plant parts emerging either through a lateral slit or through the top. Imbricate stipules, which may be the same or distinct from calyptrate stipules, are those in which the margins of 1 member of each pair are overlapped by the other. Calyptrate/imbricate stipules are usually much more than 4× longer than broad. A possible third type, tubular stipules, have margins that are fused. There are only a few species with tubular stipules and they are grouped here for convenience with those with calyptrate/imbricate stipules, for they superficially resemble the latter. True calyptrate stipules come away all at once and generally in one piece because 1 of the 2 margins between each of the stipule pairs are fused. This is unlike valvate stipules that, should they fall, usually leave a basal portion on the plant. Valvate stipules may or may not be fused along part of their margins. Most at least are somewhat fused and when such stipules fall, the fused portions remain, leaving a ring of tissue around the stem. Some stipules are persistent and very conspicuous with strongly pronounced keels (e.g., *P. diplococca*). One must study fresh material in order to fully comprehend the nature of the stipules. Herbarium specimens frequently do not show them adequately, which is the greatest single problem with working with *Psychotria*.

The species with valvate stipules are a clear majority in New Guinea, and there appear to be 2 major morphological types of these: those with acute or acuminate apices that are cleft to a greater or lesser degree or not cleft, and those with obovate or round apices. Some species have clearly defined cleft stipules but in others the cleft is not pronounced. Sometimes, as buds expand, the stipules are torn and appear to be cleft. I use "cleft" here, however, to refer to those species with stipules that are cleft due to the apparent specific inheritance of the trait rather than those with irregularly split stipules caused by expansion of young plant parts. Several taxa occur in 2 positions in the key due to the uncertainty of interpreting the nature of the cleft. This uncertainty is one of the major areas in *Psychotria* that requires intensive study. Until we clearly understand the significance of these stipular differences, we will not be able to obtain an unimpaired understanding of how to classify the species.

Leaves

Leaves are extremely variable, as one would expect in such a large group. The leaf shape tends to be obovate or oblanceolate in most taxa. Texture varies from membranaceous to very coriaceous. Blade size varies from less than 3 cm long to well over 40 cm. Within these natural size limits the number of lateral veins per side can be a significant characteristic. Some groups of species can be divided into those with fewer than 15 lateral veins per side and those with more. Vestiture also varies and can provide good taxonomic characteristics. Tertiary venation is

sometimes conspicuous. The arrangement of secondary and tertiary veins sometimes provides good taxonomic characters that are useful (e.g., those of *P. sphaerothyra* Valetton). A complete review of leaf venation could be useful in New Guinea *Psychotria*, but I found other characters more significant in delimiting species.

Inflorescence

There are species of *Psychotria* in New Guinea and the Bismarck Archipelago with inflorescences that are always trichotomous from the base (i.e., the inflorescence consists of 1 main axis with 2 smaller but similar axes arising from the base of the main one). There are others that produce what I term monochotomous inflorescences: there is 1 main axis without branches arising from the base. Besides these there are species with inflorescences that differ in sheer size: capitate (with or without accessory bracts and/or bracteoles) to spreading panicles 2–3 × larger than the subtending leaves. Inflorescence branching patterns are opposite or verticillate, although this character can sometimes be variable within a single species or even on the same individual. A group of species can be distinguished by the way flowers are disposed in sessile clusters throughout the inflorescence. Most often, however, the ultimate branches terminate in pedicellate cymules. The peduncle of the inflorescence (= unbranched main axis) is another useful character and in some cases is over $\frac{1}{2}$ the length of the inflorescence. The inflorescence is often pendent in such cases. *Psychotria dipteropoda* Lauterbach & Schumann, *P. dipteropodioides*, sp. nov., *P. leleana*, sp. nov., and *P. leleanoides*, sp. nov., have sessile flowers in tight clusters at the inflorescence nodes and appear “spicoid.”

Flowers

Most species appear to be distylous, with pin and thrum flowers on separate individuals. These should be carefully studied in the field. The flowers are 4- or 5- (and sometimes even 6- or 7-) merous with considerable variation in the size and shape of the calyx and corolla. Most taxa have minute calyx tubes with larger (but still relatively small) lobes and with corollas with the tubes narrow and cylindrical but dilating towards the apex and the lobes of various sizes that are rotate or turned back at anthesis. The color of the corolla is invariably white, although several species may have lemon or pinkish tinges.

Fruit

Fruit color is probably one of the most significant biological characters in Papuan *Psychotria*. The fruits are red or white at maturity, infrequently black.

There appear to be significant differences in the avifauna that feeds upon the red or black fruits and that which feeds on the white fruits (Thane Pratt, pers. comm.). The red and black fruits are larger, more succulent when ripe, and probably have more food value than the white ones. The species with white fruit are invariably vines (not treated here) or small shrubs. The species with red or black fruits are often larger shrubs and small trees. Of course, fruit color is often not noted on specimen labels, even when fruits were collected ripe. It is a character necessary for identifying many of the species in the treatment provided. The fruits vary in size from 3–4 mm to more than 15 mm long, and in shape from globose to obpyramidal.

Pyrenes and Endosperm

The pyrenes provide many taxonomic characters. They are either irregularly ribbed or ridged on the back or with 1–5 clearly defined ridges (sometimes these ridges have very sharp edges). The pyrenes are also variously shaped, from isometric hemispheres to obpyramidal with 1 end drawn into a long, sharp foot (*P. diplococca* and others). The endosperm is homogeneous or ruminant. All ruminant species would have been placed in the genus *Grumilea* earlier in the century. While it is currently recognized that there are no definite boundaries between species with ruminant endosperm and those with nonruminant endosperm, the character is very useful for Papuan species, for in Papua the character does help distinguish groups of species. There is also a correlation between nonruminant endosperm and the presence of sharply defined ridges in cross section.

Geographical Designations and Abbreviations

In Papua New Guinea a wealth of geographical knowledge is available and much of it has already been organized in the *Handbook Flora of Papua New Guinea* project. Indeed, my appointment to the Office of Forests and the Division of Botany in Lae was to eventually contribute a revision of *Psychotria* to the *Handbook*. I have utilized the most recent designations of provinces and subprovinces, and, in the sections listing specimens examined, the most current designations for geographical features and place names. Irian Jaya (IJ) place names are complicated by recent changes from Dutch to Indonesian names; for greater geographical accuracy, I have generally retained the names that the collectors themselves used for this area. The 1968 gazetteer for Indonesia lists some of the old, Dutch place names and cross-references them to the new, Indonesian ones.

If a taxon is found in the North Solomons Province (NS) of Papua New Guinea

(PNG), I have often cited collections from the Solomon Islands proper (SI) as well. I have abbreviated all PNG province names for use in the specimens examined sections as follows:

Central = Ce	Morobe = Mo
Chimbu = C	New Ireland = NI
East New Britain = ENB	North Solomons = NS
East Sepik = ES	Northern = N
Eastern Highlands = EH	Southern Highlands = SH
Enga = E	Western = W
Gulf = G	Western Highlands = WH
Madang = M	West New Britain = WNB
Manus = Ma	West Sepik = WS
Milne Bay = MB	

Arrangement

In the systematic section following the Key to Species, the species are arranged alphabetically. Each taxon has been treated in the same way, with the species name, place of publication, and type specimen citation first, the description following, and thereafter paragraphs devoted to specimens examined, distribution, distinguishing features, and remarks. In the paragraph devoted to distinguishing features, I attempted to provide a summary of my impressions of the salient features of the taxon shortly after having written the description for it. It is not meant to be a systematic diagnosis, but usually serves that function. The paragraph devoted to remarks usually provides my concepts of the relationship of the taxon in question as well as a discussion of any other item I felt to be noteworthy. In the descriptions, measurements provided are based on dry or pickled material unless otherwise noted.

Species considered valid but for which sufficient evidence is lacking to allow their inclusion in the Key to Species are grouped at the end of the section as Species Insufficiently Known. Three new species were recognized by Valeton in an unpublished manuscript and have been finalized here. Those taxa for which no type material is available and which cannot be placed within presently held concepts of species due to lack of information in the descriptions, are placed in a section following, titled Species Incognitae.

Systematic Treatment

Generic Description

Psychotria

Psychotria L., Syst. Nat., ed. 10, p. 929 (1759) (nom. cons.). Lectotype species: *Psychotria asiatica* L., Syst. Nat., ed. 10, p. 929 (1759).

Ouragoga L., Hort. Cliff., p. 486 (1737). Also L., Gen. Pl., ed. 1, p. 378 (1737).

Psychotrophum P. Browne, Civ. Nat. Hist. Jamaica, p. 160, table 13 fig. 1, table 17 fig. 2 (1756) (nom. rejic.).

Cephaëlis O. Swartz, Prodr. 3, 45 ("*Cephaëlis*") (1788) (nom. cons.) pro parte. Type species: *Cephaëlis muscosa* (N.J. Jacquin) O. Swartz.

Grumilea J. Gaertner, Fruct. 1: 138 (1788). Type species: *Grumilea nigra* J. Gaertner.

Uragoga Baillon, Adansonia 12: 323 (1879) pro parte. Type species: *Uragoga ipecacuanha* (Brotero) Baillon.

Trees, shrubs, vines or climbers, sometimes herbaceous. Branchlets terete or angular. Stipules interpetiolar, separate or fused, valvate, or calyptrate, imbricate, tubular, glabrous, or pubescent, entire or cleft at apex or with appendices near apex. Leaves petiolate, rarely sessile, the blades of variable size and shape, generally ovate, obovate, or elliptic, glabrous or pubescent, secondary veins obscured or prominent. Inflorescence with 1 primary or main axis with 1 or more orders of opposite or verticillate branching, or trichotomous with 2 smaller but similar axes at base of primary one, or reduced to 1–4 apparently solitary terminal flowers, or spicoid with the sessile flowers apparently whorled at the nodes of the inflorescence, or completely sessile, with or without bracts and/or bracteoles associated with the flowers. Flowers structurally bisexual but generally heterostylous with pin-flowered and thrum-flowered individuals in the same populations, the pin flowers and thrum flowers often differing in size, 4-, 5-, or 6-merous; calyx tube usually shorter than the hypanthium, truncate at apex or with lobes, sometimes the lobes pronounced and much longer than tube, glabrous or pubescent; corolla white or sometimes suffused with pink or yellow tones, usually glabrous,

the tube usually somewhat expanded towards apex, usually villous at throat, the lobes valvate in bud, shorter, equaling, or longer than tube, rotate or reflexed at anthesis; stamens usually with filaments affixed at bottom of corolla tube, the anthers basifixed or dorsifixed, linear-oblong or oblong-ovate, exerted at anthesis in thrum flowers, not exerted in pin flowers; pistil with bilocular ovary with terminal disc and with style shorter or longer than corolla tube at anthesis, the stigmas divergent in pin flowers; ovules solitary, affixed to base of locules, anatropous; fruit a drupe, bilocular, globose, turbinate, pyriform, or elongate-cylindrical in shape, red, black or white at maturity; 1 pyrene per locule, in cross section triangular or hemispherical, either with 1-5 clearly defined ridges on back or irregularly ribbed and wrinkled, sometimes with a foot at base; endosperm smooth or ruminant with invaginations of the seed coat.

Distribution. The genus is found throughout the world's tropics and subtropics from sea level to the alpine zone. There may be as many as 2,000 species worldwide with more than 200 species in Papuasias alone. The principal area of diversity is the New World tropics with secondary centers in areas of Malesia, such as New Guinea and the Philippines.

Key to Nonclimbing Species of *Psychotria* in Papuasias

1. Stipules calyptrate, imbricate, or tubular, either fused to form a hoodlike structure, usually narrow, many times longer than broad, from which the young inflorescence or leaves emerge via a lateral, longitudinal slit, or with the margins of 1 stipule enfolded by the margins of the other, or not fused but forming a narrow cylinder or tube through the top of which the young plant parts emerge (Fig. 1: A, B) 2
 - Stipules valvate, i.e., opening like the 2 shells of a clam; fused or not below, usually 2-4 × longer than broad (Fig. 1: C) 20
- 2 (1). Fruit white when ripe; leaf blades less than 3 cm long .. *P. lorentzii*
- Fruit red when ripe; leaf blades more than 3 cm long 3
- 3 (2). Inflorescence spicoid, the flowers disposed in numerous nodes along the axes directly, no branching of the inflorescence to accommodate flowers (Fig. 1: D) 4
- Inflorescence not as above 7
- 4 (3). Inflorescence with a clearly defined, strongly flattened peduncle terminating (at least when young) in a trichotomy made up of

- 2 lateral branches and the continuation of the main axis (Fig. 1: E) 5
 Inflorescence either sessile (branched from base) or with peduncle not flattened and not terminating in a trichotomy 6
- 5 (4). Plants glabrous; leaf blades less than 10 cm long ... *P. dipteropoda*
 Plants pubescent, often densely so on inflorescence axes; leaf blades more than 14 cm long *P. dipteropodioides*
- 6 (4). Inflorescence with 1 main axis, with flowers sessile *P. leleana*
 Inflorescence with 3 equal axes from base and with flowers pedicellate *P. leleanoides*
- 7 (3). Flowers and fruit disposed in headlike glomerules (Fig. 1: F, G) 8
 Flowers and fruit not in headlike glomerules 10
- 8 (7). Glomerules with fewer than 10 flowers or fruits, the peduncles bearing the glomerules less than 1.5 mm thick when dry ... 9
 Glomerules with more than 10 flowers or fruits; the peduncle(s) bearing the glomerule(s) massive, more than 3 mm thick when dry (measured along the widest surface) ... *P. crassipedunculata*
- 9 (8). Calyx less than 2.5 mm long; corolla less than 8 mm long *P. multipedunculata*
 Calyx more than 4 mm long; corolla more than 12 mm long ... *P. peckeliana*
- 10 (7). Inflorescence with contracted primary and secondary nodes, the branches, therefore, appearing umbelloid, the primary axis usually short and contracted, never more than 1 cm long before branching (Fig. 1: H, I) 11
 Inflorescence with primary or secondary nodes not contracted, or the primary axis over 1 cm long 16
- 11 (10). Inflorescence with secondary branches bearing several to many cymules 12
 Inflorescence without secondary branches, or, if secondary branches present, with 1 cymule only 13
- 12 (11). Inflorescence with fewer than 30 flowers *P. trichostoma*
 Inflorescence with over 30 flowers *P. merrilliana*
- 13 (11). Inflorescence with primary branches terminating in a clearly defined cymule, or with secondary branches that give rise to a cymule *P. saidoriensis*
 Inflorescence with primary branches only, each appearing to terminate with 1 flower or fruit (Fig. 1: J) 14

BULLETIN 1: BOTANY

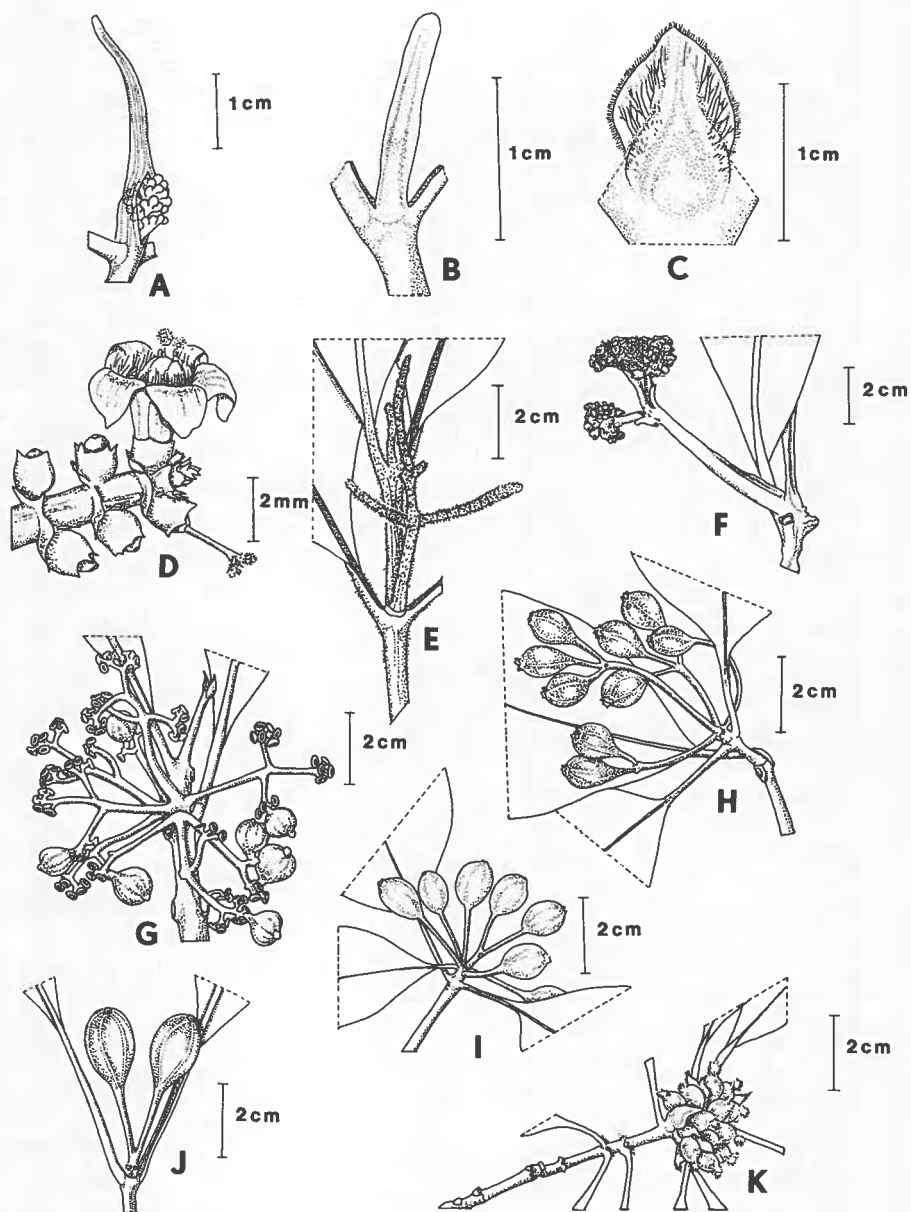


Fig. 1. Examples of key taxonomic features in Papuan *Psychotria*. A-B, Calyptrate, imbricate, or tubular stipules: A, *P. damasiana*, Sohmer et al. LAE 75283 (BISH); B, *P. talasensis*, Sohmer et al. LAE 75403. C, Valvate stipules: *P. micrococca*, Sohmer LAE 75156 (BISH). D-E, Inflorescence axes spicoid: D, *P. leleana*, Sohmer LAE 75377 (BISH);

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- 14 (13). Stipules with 4 acuminate-aristate appendages at apex, often $\frac{1}{2}$ or more the length of entire stipule; fruit capped by long calyx tube; pyrenes with large, thin ridges on back *P. stevensiana*
 Stipules, fruit, and pyrenes not as above 15
- 15 (14). Fruit over 2 cm long *P. monopedicellata*
 Fruit less than 2 cm long *P. novohiberiensis*
- 16 (10). Inflorescence axes usually very thin and threadlike, less than 0.5 mm in diam when dry *P. schmielei*
 Inflorescence axes not as above, usually over 1 mm in diam when dry 17
- 17 (16). Inflorescence with very long peduncle, 6–20 cm long *P. galorei*
 Inflorescence usually branched at base, or with peduncle not over 1.5 cm long 18
- 18 (17). Leaf blades coriaceous, narrow, oblong or elliptic-lanceolate, to 4.5 cm wide *P. pavairiensis*
 Leaf blades membranaceous, chartaceous, or coriaceous, various shapes but generally not oblong or narrow, usually over 4.5 cm wide 19
- 19 (18). Leaf blades membranaceous, generally obovate (flushing orange-copper in vivo); endosperm not ruminant *P. damasiana*
 Leaf blades chartaceous or coriaceous, generally lanceolate-elliptic; endosperm ruminant *P. talasensis*
- 20 (1). Plants with orange, red, or black fruit 21
 Plants with white fruit 67
- 21 (20). Inflorescence generally sessile, no peduncles present, with sessile, clustered flowers and fruit (Fig. 1: K) 22
 Inflorescence not sessile but flowers may be sessile at the ends of peduncles, or capitate at the end of 1 short peduncle (Fig. 1: F–G, Fig. 2: L) 28
- 22 (21). Inflorescence with several membranaceous, hairy, involucre bracts

←
 E, *P. dipteropodioides*, Hartley 9930 (LAE). F–G, Flowers and fruit in headlike glomerules: F, *P. crassipedunculata*, Frodin NGF 27305 (LAE, holotype); G, *P. multipedunculata*, Stevens & Lelean LAE 58599 (LAE, holotype). H–J, Inflorescence with compressed primary nodes: H–I, on main axis: (H) *P. saidoriensis*, Stevens LAE 50160 (LAE, holotype); (I) *P. novohiberiensis*, Coode NGF 40493 (LAE, holotype); J, no apparent secondary nodes: *P. stevensiana*, Streimann NGF 44358 (LAE, holotype). K, Inflorescence sessile: *P. phaeochlamys*, Sohmer & Katik LAE 75098 (LAE). (Continues in Fig. 2)

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- within the stipules and with flowers associated with hairy, acicular or aristate bracteoles *P. phaeochlamys*
- Inflorescence usually without involucre bracts or bracteoles, if present few and glabrous 23
- 23 (22). Twigs and calyx always pubescent (in 1 case corolla densely covered with hairs that dry a whitish color) 24
- Twigs generally glabrous, corollas never pubescent without ... 25
- 24 (23). Flowers on pedicels 2–3 mm; corolla tube 10–14 mm, thick in texture, densely pubescent without; fruit 8–10 mm long *P. gawadacephaelis*
- Flowers sessile; corolla tube about 4 mm long, thin in texture, lightly pubescent or glabrous without; fruit 5–7 mm long ... *P. conglobatioides*
- 25 (23). Leaf blades membranaceous to chartaceous, corolla tubes 9–10 mm long at anthesis *P. phaeochlamysioides*
- Leaf blades coriaceous, or at least chartaceous, corolla tube 4–8 mm long 26
- 26 (25). Corolla tube 7–8 mm long; leaf blades with 6–8 lateral veins per side *P. morobensis*
- Corolla tube about 4 mm long; leaf blades with 8–15 lateral veins per side 27
- 27 (26). Fruit black when ripe, over 1 cm long; leaf blades with 8–15 lateral veins per side *P. rosseliensis*
- Fruit red when ripe, less than 1 cm long; leaf blades with 8–10 lateral veins per side *P. kairoana*
- 28 (21). Inflorescence headlike and terminating 1 short peduncle *P. conglobata*
- Inflorescence not headlike and not terminating 1 short peduncle 29
- 29 (28). Inflorescence with branches terminated by glomerules or clusters of sessile flowers (in 2 cases with persistent and conspicuous bracts subtending all inflorescence branches and the ultimate cymules) 30
- Inflorescence without sessile flowers 37
- 30 (29). Floral glomerules or clusters subtended by persistent and conspicuous bracts 31
- Floral glomerules or clusters not subtended by persistent and conspicuous bracts 32
- 31 (30). Leaves with blades elliptic, obovate or nearly orbicular, less than 15 cm long *P. bracteosa*

- Leaves with blades narrowly elliptic to elliptic-oblongate, more than 15 cm long *P. cupulata*
- 32 (30). Plants with dense pubescence or tomentum on young stems, petioles, and inflorescence axes, the inflorescence with 2-3 orders of branching with 10-15 flowers in each glomerule or head *P. hentyi*
- Plants usually glabrous, petioles and inflorescence axes never with dense pubescence or tomentum, the inflorescence with 2 orders of branching, and usually with fewer than 10 flowers in each glomerule or head 33
- 33 (32). Stipules conspicuously thickened at base and prominently persistent on nodes (Fig. 2: M, N) *P. haumugaensis*
- Stipules not as above 34
- 34 (33). Inflorescence with 4-5 equal peduncles from a very short and contracted main axis that appears as the continuation of the stem (Fig. 2: O) *P. foremanii*
- Inflorescence with 3 axes (= peduncles) from the floral node ... 35
- 35 (34). Inflorescence with the 3 axes (= peduncles) each terminated by a cluster of flowers or fruit *P. tripedunculata*
- Inflorescence with the 3 axes or peduncles each branched 1-2× before terminating in clusters of flowers or fruit 36
- 36 (35). Corolla tube about 1 mm long *P. sarminensis*
- Corolla tube about 2.5 mm long *P. solomonensis*
- 37 (29). Plants with black fruit (when ripe); leaves broadly obovate-elliptic with the tertiary venation very conspicuous below, drying a reddish brown *P. melanocarpa*
- Plants with red fruit (when ripe); leaves various 38
- 38 (37). Inflorescence trichotomous from base, i.e., with 1 main axis and 2 smaller but similar branches from base, the inflorescence open, not contracted, 9-21 cm long, often (usually?) white at anthesis; flowers often minute, corolla tubes less than 2 (usually less than 1) mm long (in those individuals with minute flowers, the 2 lateral, basal branches sometimes lacking) (Fig. 2: P) 39
- Inflorescence not trichotomous from base, if so inflorescence either contracted (not spreading) less than 10 cm long, or with fruit turbinate and appearing bilobed 45
- 39 (38). Leaf blades with 15-24 (usually over 18) lateral veins per side, often broadly obovate and with a short, stout, blunt tip
- *P. apiculata*
- Leaf blades usually with fewer than 15 lateral veins per side ... 40

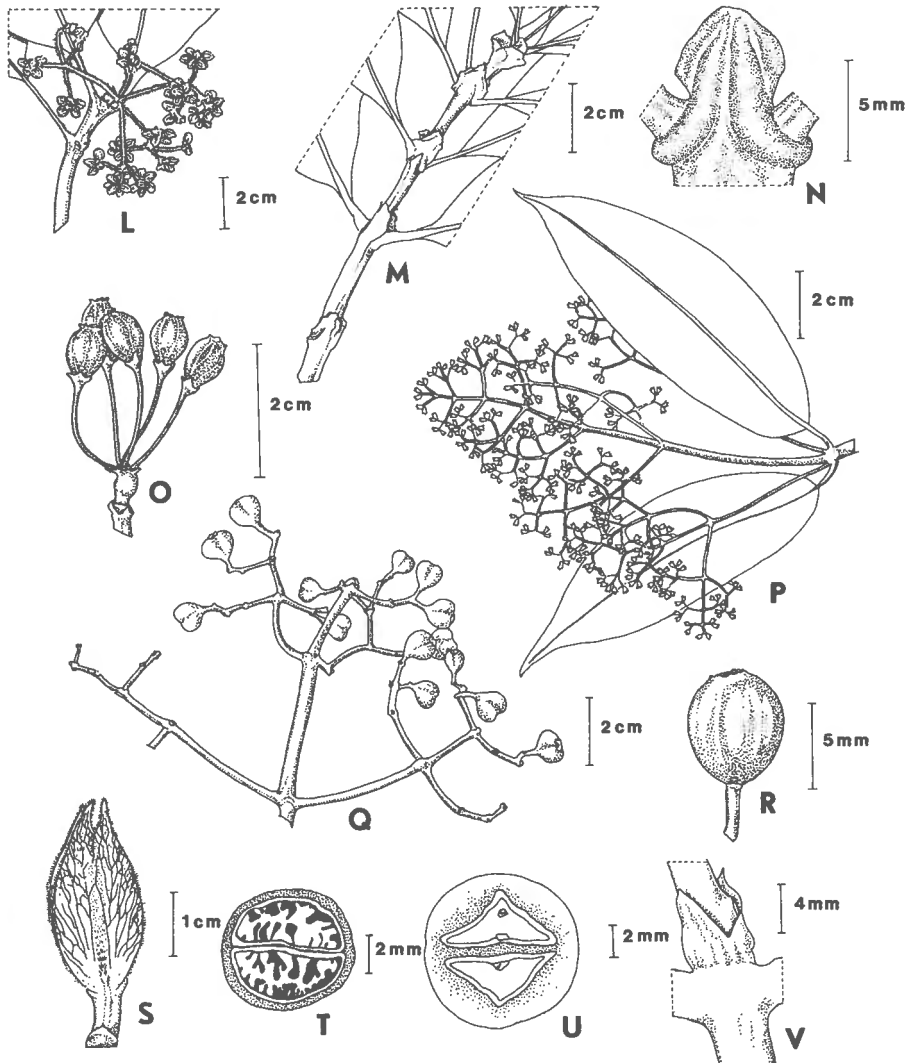


Fig. 2. Examples of key taxonomic features in Papuanian *Psychotria* (continued). L, Flowers sessile: *P. hentyi*, Sohmer & Kerenga LAE 75196 (LAE, holotype). M–N, Stipules conspicuously thickened at base and persistent: M, *P. haumugaensis*, Schodde & Craven 4761 (LAE, holotype); N, *P. diplococca*, Sohmer & Katik LAE 75191 (LAE). O, Inflorescence with 4–5 peduncles from short and compressed main axis (primary nodes compressed): *P. foremanii*, Foreman et al. NGF 45912 (LAE, holotype). P, Inflorescence trichotomous from base (1 main axis with 2 smaller branches from base): *P. chrysanthoides*, Craven & Schodde 1142 (LAE, holotype). Q, Fruit turbinate-globose or obovoid and diplococcus: *P. diplococca*, Sohmer & Katik LAE 75191 (LAE). R, Fruit globose or obovoid-

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- 40 (39). Stipules, inflorescence axes, and lower surface of leaves pubescent or puberulent, often densely so *P. butibumensis*
Plants usually glabrous 41
- 41 (40). Leaf blades stiffly coriaceous and with margins revolute, obtuse to nearly truncate at base *P. chrysanthoides*
Leaf blades coriaceous or chartaceous, the margins not revolute, the base usually obtuse, acute, or acuminate 42
- 42 (41). Principal leaf blades 9–25 cm long, most over 10 cm long 43
Principal leaf blades usually obovate-elliptic, acute to obtuse at base, 2.8–17 (most under 10) cm long 44
- 43 (42). Leaf blades obovate-elliptic to broadly elliptic, nearly oval, obtuse or rounded at base, acute at apex *P. luteola*
Leaf blades obovate-oblancheolate to oblanceolate-elliptic, acuminate at base, round at apex with sharply acute to acuminate tip *P. versteegii*
- 44 (42). Corolla white at anthesis; fruit 3–5 mm long; most individuals found at elevations below 500 m *P. micralabastra*
Corolla usually yellow or yellowish white at anthesis; fruit 5–6 mm long; most individuals found at elevations above 1,000 m *P. chrysantha*
- 45 (38). Fruit turbinate-globose, or obovoid, usually with a stout attenuate foot and often diplococcus (the fruit appearing bilobed) and the pyrenes with a thin, flat, acuminate to obtuse taillike appendage on basal end (Fig. 2: Q) 46
Fruit globose, obovoid-globose, or, in one case, ovoid (widest below the middle), generally without a stout, attenuate foot, not demonstrably diplococcus, and the pyrenes without an apparent or prominent, taillike appendage at basal end (Fig. 2: R) 55
- 46 (45). Fruit in dry condition about 5–7 mm long or shorter 47
Fruit in dry condition more than 7 mm long, usually over 10 mm long 50

←

globose, not diplococcus: *P. johnsii*, *Sohmer & Kerenga* LAE 75199 (LAE, holotype). **S,** Stipules cleft at summit: *P. multicostata*, *Sohmer et al.* LAE 75510 (LAE). **T,** Endosperm ruminant: *P. testacea*, *Kalkman & Tissing* 4229 (LAE, holotype). **U,** Endosperm not ruminant: *P. leptothyrsa* var. *leptothyrsa*, *Sohmer et al.* LAE 75405 (BISH). **V,** Valvate stipules fused below into a short tube: *P. leptothyrsa* var. *leptothyrsa*, *Sohmer & Katik* LAE 75178 (LAE).

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- 47 (46). Inflorescence with unbranched main axis (= peduncle) 5 cm or more long (usually much longer) 48
 Inflorescence with peduncle less than 5 cm long 49
- 48 (47). Leaf blades oblong- to obovate-lanceolate, 16–33 cm long, and with 15–25 lateral veins per side (the leaves apparently dimorphic); inflorescence with peduncle 5–6 cm long ... *P. heterophylla*
 Leaf blades oblong-elliptic, (16–)22–25.5 cm long, with 14–17 lateral veins per side (leaves not dimorphic); inflorescence with peduncle over 6 cm long *P. croftiana*
- 49 (47). Leaf blades with 17–18 lateral veins per side and with the tertiary veins forming a conspicuous, prominent network above, visible with a 10× lens, the surface very glossy *P. reticulatissima*
 Leaf blades with more than 19 lateral veins per side, the tertiary veins not forming a conspicuous, prominent network, the surface not particularly glossy *P. diplococca* var. *tauriensis*
- 50 (46). Stipules with a prominent, thickened, triangular base that may persist on the nodes, stipules often cleft at the summit; leaves either relatively large (18–28.5 cm long) and obovate or drying a distinctive reddish brown or yellowish brown (Fig. 2: N, S) ... 51
 Stipules without a prominent, thickened, triangular base, and usually not cleft at summit 52
- 51 (50). Leaves with blades 18–28.5 cm long, with 15–17 primary veins per side, not drying a distinctive reddish brown or yellowish brown *P. diplococca*
 Leaves with blades 13.5–22 cm long, with 9–17 primary veins per side, drying a distinctive yellowish or brick reddish brown ...
 *P. archboldii*
- 52 (50). Stipules usually cleft at summit, sometimes the cleft obscure; leaf blades yellowish brown when dry, the lateral veins not conspicuous; fruit 12 mm or more long (Fig. 2: S) 53
 Stipules not cleft at summit; leaf blades not unusually colored when dry, the lateral veins conspicuous, robust, usually deeply impressed above, prominent below, and usually forming an angle of less than 50° from the midrib, ascending in a steep arc; fruit less than 10 mm long 54
- 53 (52). Leaf blades pubescent below, with tertiary venation prominent *P. melanocarpa*
 Leaf blades glabrous below, with tertiary veins not prominent *P. archboldii*

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- 54 (52). Fruit obovoid and nearly fusiform, about 10 mm long (not including the prominent persistent bowl-shaped calyx) ... *P. aquatilis*
 Fruit turbinate-obovoid, about 8 mm long, the calyx not prominent on the fruit *P. aurea*
- 55 (45). Stipules cleft at summit 56
 Stipules not cleft at summit 57
- 56 (55). Leaf blades 8.5–15.5 cm long, with 10–12 lateral veins per side *P. vapaensis*
 Leaf blades 12.5–23 cm long, with 13–17 lateral veins per side *P. johnsii*
- 57 (55). Leaf blades with 22–28 lateral veins per side *P. sphaerothyrsa*
 Leaf blades with fewer than 18 lateral veins per side 58
- 58 (57). Endosperm clearly ruminant; the stipules usually fused below, but usually without forming a prominent tube (Fig. 2: T) 59
 Endosperm not ruminant, smooth and homogeneous, infrequently with a small invagination of the seed coat on the ventral surface; the stipules fused for much of their length forming a tube, the bottom of which persists on the nodes (Fig. 2: U, V) 64
- 59 (58). Fruit ovoid-fusiform, wider below middle, flattened in 1 plane but with a prominent ridge on each of the 2 flattened surfaces; inflorescence with a slender peduncle $\frac{1}{2}$ – $\frac{3}{4}$ of total length ...
 *P. axilliflora*
 Fruit not as above, globose, or obovoid-fusiform; the inflorescence never with a slender peduncle 60
- 60 (59). Fruit 4–5 mm in length 61
 Fruit 10–12 mm in length 62
- 61 (60). Most leaf blades 18–32 cm long, cordate or truncate at base ...
 *P. ramuensis*
 Most leaf blades 11–21 cm long, acute to obtuse at base
 *P. leiophloea*
- 62 (60). Fruit globose, smooth and leathery in texture *P. kajewskii*
 Fruit obovoid-globose, not smooth and leathery in texture ... 63
- 63 (62). Fruit capped by the prominent, persistent bowl-shaped calyx tube; leaf blades with lateral nerves prominent, deeply impressed above, conspicuous below, drying grayish green *P. aquatilis*
 Fruit capped with the relatively inconspicuous calyx tube; leaf blades without prominent lateral nerves, drying brick red ...
 *P. testacea*

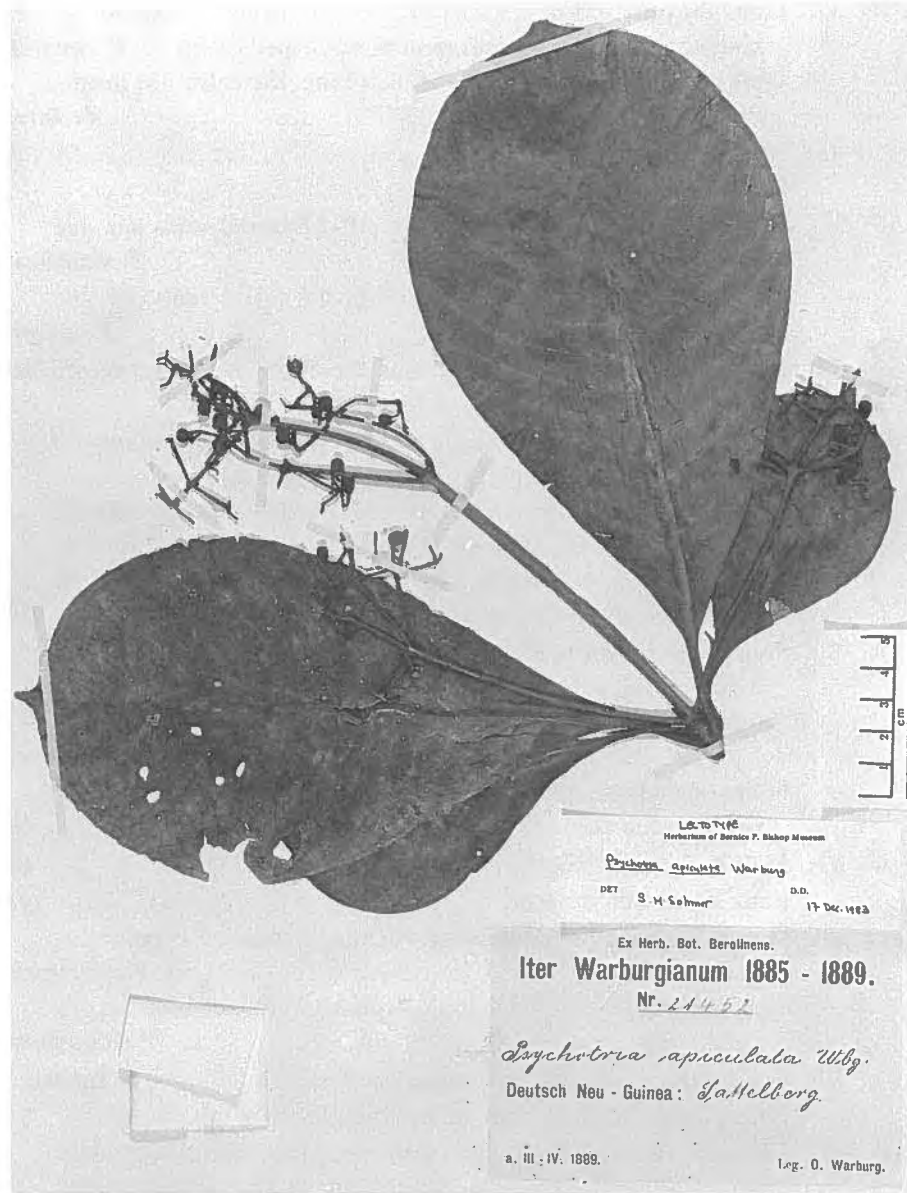


Fig. 3. *Psychotria apiculata*. Warburg 21452 (BM, lectotype).

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- 64 (58). Leaves generally chartaceous to semicoriaceous, infrequently membranaceous; corolla tubes 5-7 mm long *P. leptothyrsa*
 Leaves always membranaceous; corolla tubes usually 3-4 mm long
 65
- 65 (64). Fruit 4-6 mm long; inflorescence delicate, with slender peduncle rarely over 3 cm long, the branches often delicate; leaf blades 6.5-22.5 cm long *P. membranifolia*
 Fruit 10-12 mm long, globose or globose-obovoid; inflorescence generally with a sturdy peduncle usually over 3 cm long; leaf blades 11.5-30 cm long 66
- 66 (65). Pyrenes with 2 or 3 thin, sharp ridges on back continuous with outer wall of the fruit, forming thereby 3-4 cavities filled with spongy tissue *P. goodenoughiensis*
 Pyrenes smooth on back, not ridged *P. purariensis*
- 67 (20). Stipules cleft, or apex regularly bidentate and/or somewhat lacinate on margins (Fig. 2: S) 68
 Stipules not cleft, rarely bidentate at apex, almost always entire at margins 107
- 68 (67). Endosperm not ruminant 69
 Endosperm ruminant, or at least with invaginations along margins as seen in cross section 73
- 69 (68). Stipules usually deeply cleft, not thickened below, the lobes drawn out into fine, aristate points 70
 Stipules not deeply cleft, the lobes obtuse or acute, or the stipules thickened at base, with 3 appendages at summit 72
- 70 (69). Plants glabrous; leaf blades 10-25 cm long, with 10-17 difficult to distinguish lateral veins per side; inflorescence elongate, 15-25 cm long, with 4-6 primary nodes; fruit ellipsoid *P. decorifolia*
 Plants pubescent, densely so on stipules and inflorescence axes; leaf blades to 13 cm long at most, with 9-14 easily distinguishable lateral veins per side; inflorescence to 5 cm long, with 2-3 primary nodes; fruit globose 71
- 71 (70). Flowers associated with pronounced, linear bracts *P. hebecarpa*
 Flowers without bracts *P. trichocarpa*
- 72 (69). Leaf blades 8-15.5 cm long; inflorescence elongate, 10-14 cm long *P. karemaensis*
 Leaf blades over 35 cm long; inflorescence congested *P. myrmecophila*
- 73 (68). Inflorescence (at least in fruit) usually as long as or much longer

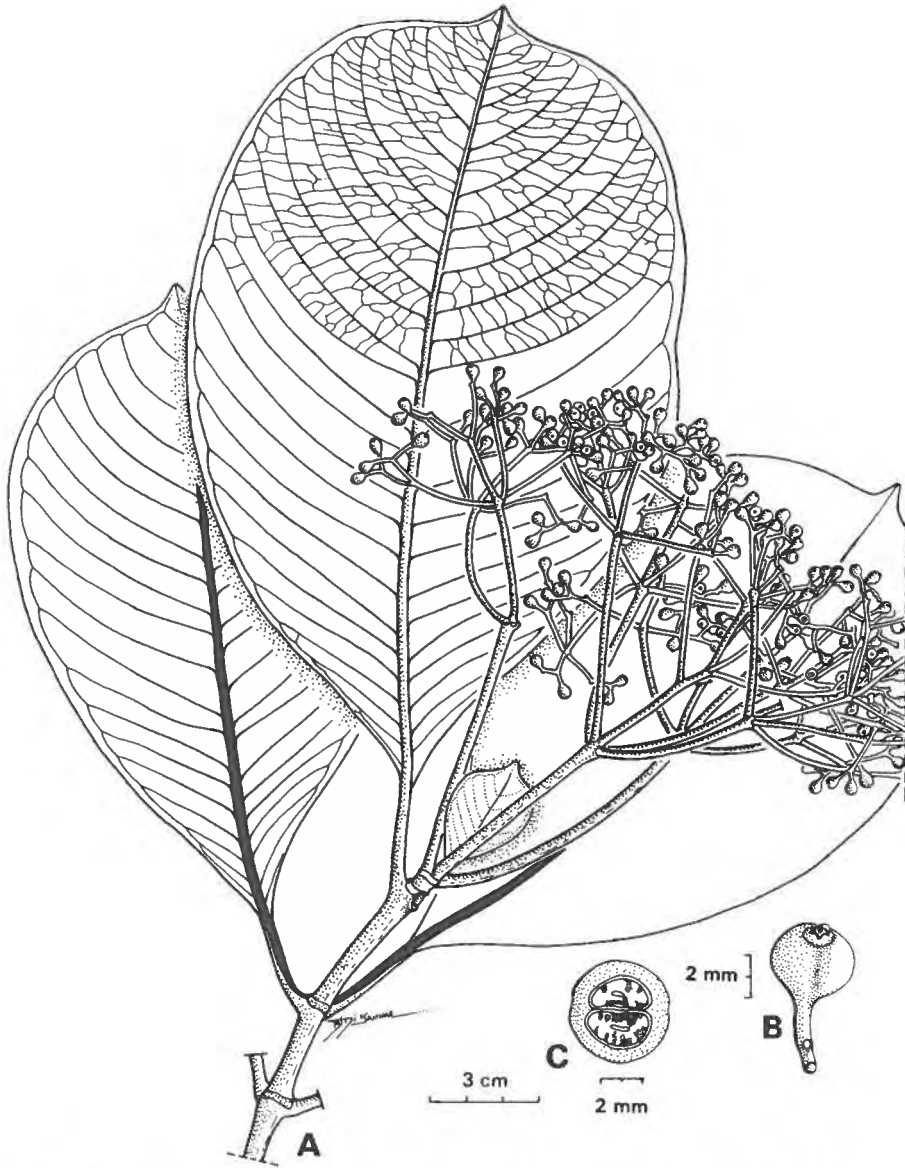


Fig. 4. *Psychotria apiculata*. Hartley 12186 (LAE): A, habit; B, fruit; C, fruit x.s.

- than the subtending leaves, with the peduncle usually $\frac{1}{2}$ - $\frac{3}{4}$ of total length and usually with verticillate branching, invariably white or whitish green at anthesis; leaf blades never rugose . . . 74
- Inflorescence usually less than $\frac{1}{2}$ as long as subtending leaves, if longer, either the leaves rugose or less than 10 cm long or the inflorescence without a peduncle (i.e., sessile), rarely white at anthesis 86
- 74 (73). Principal leaf blades 5.5-20 cm long, usually less than 15 cm long, generally elliptic in outline 75
- Principal leaf blades usually more than 15 cm long, frequently obovate 79
- 75 (74). Inflorescence axes, stipules, and sometimes also the lower surface of the leaf blades densely pubescent 76
- Inflorescence axes, stipules, and leaves usually glabrous 77
- 76 (75). Leaf blades with lower surface densely pubescent *P. hollandiae* var. *whitei*
- Leaf blades with lower surface ranging from glabrous to pubescent but never densely pubescent *P. hollandiae* var. *pioraensis*
- 77 (75). Stipules usually 1-2.2 cm long, deeply cleft at summit often to within middle of stipule *P. ramulosa*
- Stipules 0.5-1.2 cm long, moderately or barely cleft at summit, never cleft to middle 78
- 78 (77). Leaf blades usually obtuse to acute at apex; corolla tube over 3.5 mm long *P. boloboensis*
- Leaf blades usually acuminate at apex; corolla tube usually less than 3 mm long *P. micrococca*
- 79 (74). Leaf blades broadly elliptic, more than 7.5 cm wide at widest point *P. direpta*
- Leaf blades obovate, if elliptic, less than 8 cm wide at widest point 80
- 80 (79). Leaf blades generally with apex round or obtuse *P. katikii*
- Leaf blades usually with apex acute to acuminate 81
- 81 (80). Inflorescence axes somewhat pubescent . *P. hollandiae* var. *pioraensis*
- Inflorescence axes glabrous or, at most, puberulent 82
- 82 (81). Inflorescence equaling or smaller than the subtending leaves . . . 83
- Inflorescence longer than the subtending leaves, often nearly 2× as long 85
- 83 (82). Plant parts pubescent *P. hollandiae* var. *hollandiae*
- Plant parts glabrous 84

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- 84 (83). Leaf blades 19–26 cm long *P. vanimoensis*
 Leaf blades 9–14(–21) cm long *P. ramulosa*
- 85 (82). Inflorescence axis over 4 mm wide at base, not strongly compressed *P. longipaniculata*
 Inflorescence axis less than 4 mm wide at base, very strongly compressed *P. mafuluensis*
- 86 (73). Leaf blades with more than 15 (often more than 20) lateral veins per side 87
 Leaf blades with fewer than 15 primary veins per side 91
- 87 (86). Leaf blades membranaceous or chartaceous, usually glabrous below (except in *P. multicosata*) and with inflorescence without involucre bracts 88
 Leaf blades coriaceous to stiff-coriaceous, usually pubescent below and with inflorescence with involucre bracts 90
- 88 (87). Inflorescence expanded, more than 10 cm long; leaf blades with the lateral veins joining 1 or 2 prominent submarginal costae, broadly elliptic to nearly orbicular in outline ... *P. sphaerothyrsa*
 Inflorescence contracted or less than 5 cm long; submarginal costae not present 89
- 89 (88). Inflorescence headlike, not over 2 cm long *P. kaniensis*
 Inflorescence not headlike, 2–3 cm long *P. multicosata*
- 90 (87). Leaf blades coriaceous to stiffly coriaceous, sometimes rugose; corolla tube 11–16 mm long, glabrous within; pyrenes with 2 prominent ridges on back with a sulcus between ... *P. dolichantha*
 Leaf blades coriaceous, not noticeably rugose; corolla tube about 7 mm long, hairy within; pyrenes without ridges on back
 *P. ramadecumbens*
- 91 (86). Leaf blades rugose and often stiffly coriaceous 92
 Leaf blades not rugose, if so then not coriaceous 95
- 92 (91). Leaf blades densely pubescent below and very prominently rugose, 3.4–9.3 cm long; inflorescence axes and stem tips also densely pubescent; fruit 6–8 mm in diam; pyrenes with ribs or ridges on back *P. frodinii*
 Leaf blades puberulent or pubescent or sometimes glabrous, rugose, 8–20 (usually over 10) cm long; inflorescence axes often glabrous; fruit 7–9 mm in diam; pyrenes with irregular ribs or ridging on back 93
- 93 (92). Leaf blades broadly elliptic-oblong, generally glabrous below, or pubescent along costa below, not densely pubescent, the tertiary

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- veins not prominent below; inflorescence compact, without a long peduncle, to 3 cm long *P. asekiensis*
- Leaf blades elliptic, generally pubescent, with tertiary veins very conspicuous below 94
- 94 (93). Inflorescence to 12 cm long, usually with peduncle $\frac{3}{4}$ - $\frac{4}{5}$ of total length, pendulous or lax *P. mur-murensis*
- Inflorescence to 6 cm long, with peduncle never more than $\frac{1}{3}$ of total length, never pendulous or lax *P. crassiramula*
- 95 (91). Leaf blades generally over 15 cm long 96
- Leaf blades less than 15 (often less than 10) cm long 100
- 96 (95). Leaf blades usually broadly obovate to ovate, always pubescent below, rugose in vivo, with numerous prominent crossveins linking the lateral nerves; fruit usually somewhat hairy *P. wichmannii*
- Leaf blades elliptic, narrowly elliptic, or obovate, glabrous, if pubescent then without numerous and conspicuous crossveins between lateral nerves 97
- 97 (96). Plants less than 2 m tall, individuals often reduced to unbranched, suffrutescent, and less than 1 m high; leaf blades usually narrow and elongate-elliptic with 8-10 steeply ascending lateral veins per side *P. ectasiphylla*
- Plants usually over 2 m high, never reduced to unbranched, suffrutescent individuals less than 1 m high; leaf blades broadly obovate or ovate-elliptic, with 9-17 gradually ascending lateral veins per side 98
- 98 (97). Corolla tubes 2-3 mm long *P. sentanensis*
- Corolla tubes over 4.5 mm long 99
- 99 (98). Corolla tubes 4.5-5.5 mm long *P. streimannii*
- Corolla tubes over 10 mm long *P. aurea*
- 100 (95). Calyx lobes over 5 mm long *P. magnasepala*
- Calyx lobes under 3 mm long 101
- 101 (100). Stipules with lobes narrowed to long, fine aristate points nearly $\frac{1}{2}$ total length 102
- Stipules with acute to acuminate lobes not narrowed to fine, aristate points, usually less than $\frac{1}{4}$ the total length of stipules 104
- 102 (101). Inflorescence to 4 cm long, condensed, with 1 short, stout main axis with opposite branching (not demonstrably trichotomously branched) *P. dieniensis*

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- Inflorescence normally over 5 cm long (to 16 cm), with a peduncle
 $\frac{1}{2}$ - $\frac{3}{4}$ total length, terminating with 3 branches, or branched
trichotomously 103
- 103 (102). Inflorescence generally 5-7 cm long; leaf blades usually less than
12 cm long *P. dolichosepala*
Inflorescence usually 6-16 cm long; leaf blades 11-16 cm long .
..... *P. wichmannii*
- 104 (101). Leaf blades 11.5-15 cm long *P. pulleniana*
Leaf blades generally less than 10 cm long 105
- 105 (104). Pedicels 1.5-2 cm long *P. marafungaensis*
Pedicels less than 2 mm long 106
- 106 (105). Inflorescence trichotomous from base, corolla tube about 5 mm
long *P. leucococca*
Inflorescence not trichotomous from base (with 1 main branch
from base), corolla tube about 1.5 mm long *P. beaufortiensis*
- 107 (67). Plants totally devoid of branches 108
Plants branched 109
- 108 (107). Inflorescence strongly reflexed; leaf blades coriaceous
..... *P. reflexapedunculata*
Inflorescence not reflexed; leaf blades membranaceous to coria-
ceous *P. inconspicua*
- 109 (107). Leaf blades with 15-24 lateral veins per side, pubescent below
..... *P. hollandiae*
Leaf blades usually with fewer than 15 lateral veins per side, usually
glabrous below 110
- 110 (109). Leaf blades over 15 cm long; inflorescence robust, spreading, as
long as the subtending leaves 111
Leaf blades usually less than 15 cm long, if longer inflorescence
usually shorter than the subtending leaves 112
- 111 (110). Leaf blades obovate; corolla tube 2 mm long with lobes equal to
tube *P. womersleyi*
Leaf blades elliptic-obovate; corolla tube 4 mm long with lobes
shorter than tube *P. direpta*
- 112 (110). Endosperm not ruminant; pyrenes with 1, 3, or 5 clearly defined
ridges on dorsal surface 113
Endosperm ruminant; pyrenes various, but usually without ridges
..... 116
- 113 (112). Leaf blades less than 1.5 × 5 cm wide and long *P. tenuis*
Leaf blades larger 114

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- 114 (113). Inflorescence branching nearly at base, the peduncle less than 1 cm long *P. petiolosa*
 Inflorescence with peduncle over 3 cm long 115
- 115 (114). Leaf blades chartaceous; inflorescence contracted at top, not spreading, determinate in growth, the lateral branches barely 1 cm long; plants about 3 m high *P. waiuensis*
 Leaf blades membranaceous; inflorescence spreading, lateral branches 3–8 cm long, the branches indeterminate—continuous growth via activation of axillary buds associated with the terminal flowers; plants 0.7–3 m high *P. vinkii*
- 116 (112). Leaf blades less than 3 cm long 117
 Leaf blades more than 3 cm long 119
- 117 (116). Leaf blades 2–2.9 cm long, obtuse, the lateral veins discernible; corolla glabrous *P. lorentzii*
 Leaf blades 1.1–1.5 cm long, nearly spatulate or orbicular, the lateral veins not usually visible 118
- 118 (117). Corolla covered with minute but dense hairs, leaves spatulate *P. vaccinioides*
 Corolla glabrous, leaves nearly orbicular *P. vaccinioidifolia*
- 119 (116). Stipules usually narrow-lanceolate, usually sharply acuminate at apex 120
 Stipules round, obtuse, or acute at apex, if acuminate, then the stipules not narrow-lanceolate 122
- 120 (119). Leaf blades with fewer than 10 lateral veins per side ... *P. nanifrutex*
 Leaf blades with 8–16 lateral veins per side 121
- 121 (120). Inflorescence with opposite branching, often appearing trichotomous *P. vaeletoniana*
 Inflorescence with verticillate branching *P. boloboensis* var. *balimensis*
- 122 (119). Plants with all leaf blades less than 3 cm in width 123
 Plants with most leaf blades more than 3 cm in width 124
- 123 (122). Inflorescence with peduncle less than 1 cm long, leaf blades narrow, elliptic-lanceolate *P. vaeletoniana*
 Inflorescence with peduncle over 2 cm long *P. montensis*
- 124 (122). Fruit about 5 mm long or less 125
 Fruit 7–14 mm long 128
- 125 (124). Calyx lobes 3–5.5 mm long, inflorescence long-pedunculate, with few cymes and lax *P. giluwensis*

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- Calyx lobes less than 3 mm long, inflorescence, if long-pedunculate, with numerous flowers 126
- 126 (125). Corolla lobes about 2 mm long, 2× the length of tube; inflorescence about ½ as long as subtending leaves *P. kelelensis*
- Corolla lobes 1–2 mm long, shorter than tube; inflorescence longer or about as long as subtending leaves 127
- 127 (126). Inflorescence about as long as subtending leaves *P. myrsinoides*
- Inflorescence longer than subtending leaves, often 2× as long *P. micrococca*
- 128 (124). Stipules generally broadly obovate or ovate-oblong, usually 1.5–2.5(–3) cm long, often white and fleshy in vitro 129
- Stipules not broadly obovate, or less than 1.5 cm long 132
- 129 (128). Flowers long-pedunculate, densely tomentose; calyx 3–5.5 mm long *P. giluwensis*
- Flowers not as above; calyx less than 3 mm long 130
- 130 (129). Inflorescence usually with the peduncle 2–9 (usually over 5) cm long and often 2–4 mm in width at base (when dry) 131
- Inflorescence with the peduncle usually to 3 cm long, if longer, generally less than 2 mm in width at base (when dry) *P. chonantha*
- 131 (130). Leaf blades strongly rugose *P. mur-murensis*
- Leaf blades not rugose *P. randiana*
- 132 (128). Inflorescence with peduncle of main axis less than 1 cm long 133
- Inflorescence with peduncle of main axis more than 2 cm long 134
- 133 (132). Leaf blades with 10–11 lateral veins per side *P. leucococca*
- Leaf blades with 12–14 lateral veins per side *P. paludicola*
- 134 (132). Pyrenes with 4 prominent ridges on back, the central ones thin and very sharply defined; plant drying yellowish ... *P. flaviramula*
- Pyrenes without conspicuous ribs or ridges on back; plant parts drying green, greenish red or reddish brown, never yellowish 135
- 135 (134). Plants with fruit 5–8 mm long *P. randiana* var. *tafaensis*
- Plants with fruit 8–12 mm long *P. boloboensis*

Species Descriptions

Psychotria apiculata Warburg, Bot. Jahrb. 13: 439 (1891). Figs. 3, 4.—Type: Warburg 21452 (BM, lectotype, here designated). PNG: MOROBE PROV: according to Valetton, collected on the Sattelberg nr Finschhafen, 1889.

Shrubs or small trees 2–7 m high. Stipules valvate, glabrous, oblong-ovate, to 1 cm long, apex truncate or round after drying, acuminate with a pronounced keel on back in vivo, not cleft. Leaves with petioles 1–4 cm long; blades semicoriaceous to fleshy-coriaceous, glabrous, obovate to obovate-elliptic, often broadly obovate, $5.5 \times 11\text{--}13.5 \times 21.5$ cm, lateral veins 14–24 (usually more than 18) per side, joining with a prominent submarginal vein, apex round to nearly truncate with a short, stout tip, base acute-cuneate. Inflorescence nearly pure white at anthesis, generally shorter than subtending leaves, appearing flat-topped or obpyramidal due to the lower lateral branches terminating at same height as main axis, to 15 cm long, peduncle (unbranched main axis) to 2 cm long, 2 similar but smaller lateral axes from base, each axis with 2–3 primary nodes with verticillate branching. Flowers 4-merous, dimorphic, sessile or on very short pedicels; hypanthium and calyx glabrous, about 2 mm long, lobes irregular, summit obtuse; corolla white, thin in texture, glabrous inside and out (no hairs at throat), tube usually 1–2 mm long, lobes oblong-subulate, about 3 mm long, reflexed at anthesis; anthers about 1 mm long, conspicuously exerted 2–3 mm beyond corolla throat in thrums. Fruit red when ripe, obovoid-globose, somewhat flattened perpendicular to the septum, 4–5 mm long and wide. Pyrenes without ridges on back, smooth, somewhat heart-shaped in gross outline, endosperm clearly ruminant.

Other Specimens Examined. PNG. W: 2.4 km E of Subitana, Hartley TGH 10783 (CANB, L, LAE). SH: Koroba S.P.: Tabifugwa, Powell & Gebo UPNG 1786 (LAE, UPNG). Mo: Lae S.P.: Tusambu Riv nr Tusili Vill, Henty NGF 14777 (CANB, K, L, LAE); Ana Vill, Streimann NGF 24331 (CANB, L, LAE); Sangkwep logging area, Fallen et al. 297 (BISH, K, L, LAE); nr Butibum Riv 7 mi (11.25 km) N of Lae, Hartley TGH 9831 (A, CANB, L, LAE); Busu Riv nr Lae, Hartley 12186 (CANB, LAE); Bewapi Crk, Henty NGF 14816 (BO, CANB, K, L, LAE), Morobe S.P.: nr Mor Riv, Katik LAE 70814 (UPNG).

Distribution. Probably more widely distributed than the number of collections demonstrates, as it occurs from Western Province to Morobe Province. Most of the collections have been made in lowland rain forests below 250 m elevation.

Distinguishing Features. Leaf blades generally with 18–24 lateral veins per side joining a submarginal costa and with a short, broad tip at apex, otherwise round or obtuse; corolla tube glabrous within, 4–6 mm long.

Remarks. This species is characterized best, after the red fruit and valvate, entire stipules, by the relatively numerous lateral veins joining to form a submarginal costa that parallels the margin for its entire length. The short, broad, acute tip at an otherwise nearly round apex is also characteristic and is the reason for the species name. The only other species with the same pronounced submarginal costa, as far as I know, is *P. sphaerothyrsa* Valetton, to which this species is not closely related. The relationships for *P. apiculata* are with the other trichotomous species, such as *P. micralabastra* (Lauterbach & Schumann) Valetton, *P. butibumensis*, sp. nov., and *P. chrysantha* Merrill & Perry. The living material of *P. apiculata* that I have seen has startlingly white inflorescences at anthesis. This white color, however, fades by the time the fruit matures. In a random sample I made of 800 pyrenes from 400 fruits of 1 individual of the Sangwep area in the Lae S.P., contents of 34% had been destroyed by an insect that apparently passes its larval stage within the seed itself.

Psychotria aquatilis Merrill & Perry, J. Arnold Arbor. 27: 202 (1946). Fig. 5.—
Type: Brass 6667 (A, holotype; BO, BM, L, LAE, isotypes), PNG: WESTERN PROV: Balimo Dist: Fly Riv, 528-mi Camp, in alluvial forest along flood banks of river, 80 m, May 1936.

Shrubs 1–2(–7?) m. Stipules valvate, fused for more than ½ their length, ovate, potential size unknown, apex round. Leaves with petioles 1–3 cm long; blades chartaceous to coriaceous, narrowly elongate-elliptic to oblanceolate to nearly oval, 4 × 13–10 × 32 (–12.5 × 22.5) cm, lateral veins 9–13 per side, usually deeply impressed above, prominent below, and strongly ascending to an angle of about 35°, spreading to an angle of about 70° from the costa, often pubescent below, apex acuminate to round with a short, sharp, abrupt point, base acuminate to attenuate and often decurrent down petiole, the blades drying a normal grayish green. Inflorescence with 1 main axis to 9 cm long, 3–4 primary nodes with verticillate branching at each, ultimate branches with 2–3 cymes of 3 flowers each, the axes often densely pubescent. Flowers unknown. Fruit red at maturity, obovoid and nearly fusiform, 9–10 mm long not including the large, bowl-shaped, prominent, persistent calyx. Pyrenes without prominent ribs or ridging, somewhat drawn out into an obtuse tail, endosperm ruminant.

SOHMER: NEW GUINEA AREA PSYCHOTRIA

Plants of Papua.

the 1986 Fly River Expedition of the American Museum of Natural History. Richard Archbold, Leader.

Number: 6667
Fly River, 528 mile Camp.

Psychotria aquatilis var. aquatilis
on river flood banks & adjacent
80 - 100 ft. May 1986
small 3-4 dm; narrow leafy
in dense permanent forest.
terminal panicle 1 dm; 100 fruit
diam.

0
5 cm



Plants of Papua (British New Guinea), collected by the 1986 Fly River Expedition of the American Museum of Natural History, Mr. Richard Archbold, Leader.

Distributed by the Arnold Arboretum

No. 6667 I. J. Brass May 1986

Psychotria aquatilis var. *aquatilis*

Fly River, 528 mile Camp. 80 m. alt.
Greenish scrub or small tree abundant on
river flood banks and backwater on flood plain.
Small; short terminal panicle, diam. ca.
fr. 2-3 cm. diam.

Fig. 5. *Psychotria aquatilis* var. *aquatilis*. Brass 6667 (A, holotype): habit.

Distinguishing Features. Leaf blades often narrowly elongate-elliptic, the lateral veins usually deeply impressed above and prominent below; fruit with prominent, persistent, bowl-shaped calyx.

The venation on this species is distinctive, and there appear to be 2 varieties, which can be separated by the following key:

1. Leaf blades of principal leaves 4–11 (usually less than 8) cm broad at widest point, lateral veins ascending at an angle less than 50° var. *aquatilis*
Leaf blades of principal leaves 10.5–12.5 cm wide at widest point, lateral veins ascending or spreading at an angle greater than 50° . . var. *divaricatus*

Psychotria aquatilis var. *aquatilis*

Shrubs 1.5–2(–7?) m high. Leaves with petioles 1–3 cm long; blades narrowly elongate-elliptic to oblanceolate, 4 × 13–10 × 32 cm, lateral veins diverging at an angle less than 50°.

Other Specimens Examined. PNG. SH: Kagua S.P.: Lake Kutubu along Mendi track, *Gray* NGF 8121 (LAE); Mendi S.P.: Afua, *Conn* LAE 69119 (BFC); Nipa S.P.: nr Wasemi, *Schodde* 2315 (CANB, LAE). W: Kiunga S.P.: 50 km NE of Ningenum, *Hyn* 252 (LAE).

Distribution. In rain forests or swampy areas, from 200 to 800 m elevation.

Distinguishing Features. Leaf blades with lateral veins diverging at an angle less than 50°.

Psychotria aquatilis var. *divaricatus* Sohmer, var. nov. Fig. 6.—Type: *Foreman & Kumul* NGF 48285 (LAE, holotype; CANB, L, isotypes), PNG: WEST SEPIK PROV: Amanab Dist: N of Kilifas Vill, in rain forest on a ridge at ca. 350 m, 21 Mar 1970.

Frutices circa 1 m alti sunt, petiolis 1.7–2 cm longis, laminis 10.5 × 22–12.5 × 22.5 cm late ellipticis varie subovatibus nervis lateralibus in 50° vel ultra divergentibus, fructibus circa 9 mm longis rubris sed calyci pateriformi persistenti excuso, pyrenis in dorso non costatis nec liratis sed endospermo prominente ruminato.

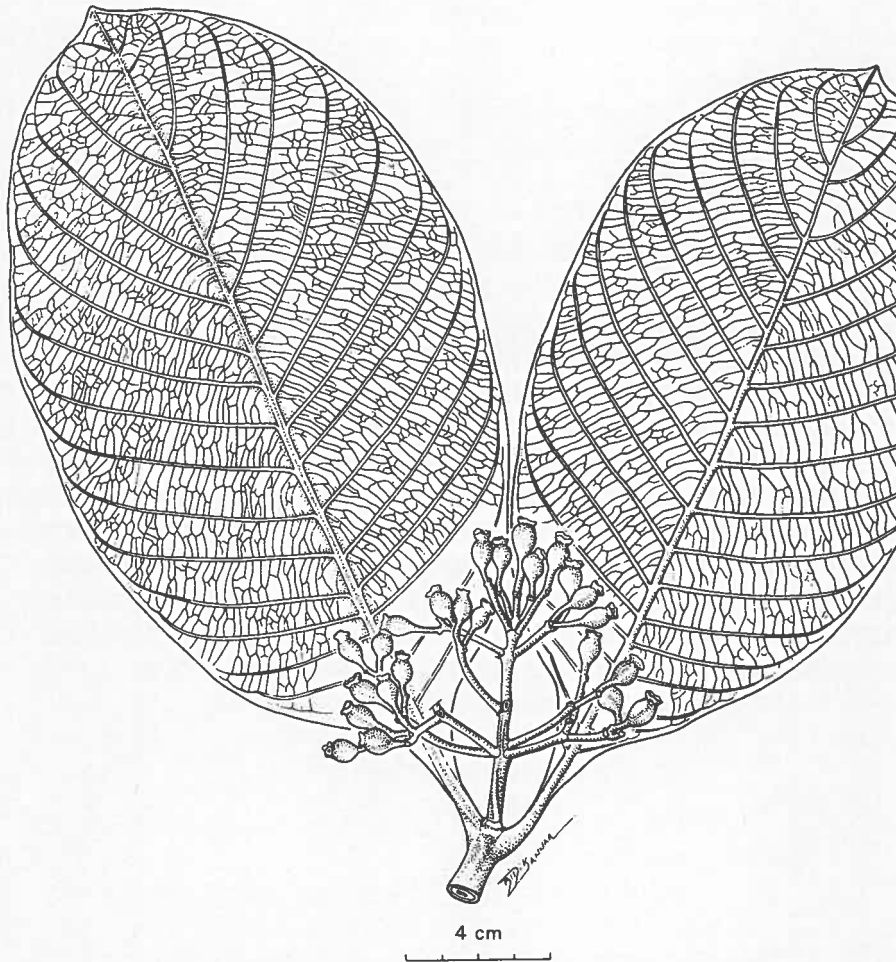


Fig. 6. *Psychotria aquatilis* var. *divaricatus*. Foreman & Kumul NGF 48285 (LAE, holotype): habit of fruiting branch.

Shrubs about 1 m high. Leaves with petioles 1.7–2 cm long; blades broadly elliptic to nearly oval, 10.5×22 – 12.5×22.5 cm, lateral veins diverging at an angle greater than 50° . Fruit red when ripe, obovoid, about 9 mm long not including the prominent, bowl-shaped persistent calyx. Pyrenes not ribbed or ridged on back, endosperm prominently ruminant.

Other Specimens Examined. PNG. W: Kiunga S.P.: Fly Riv nr Kiunga,

Henty & Barlow NGF 42987 (L, LAE). SH: Kutubu S.P.: 20 km SSW of Kutubu, *Jacobs* 9205 (L, LAE).

Distinguishing Features. Leaf blades with lateral veins diverging from the midrib at an angle greater than 50°.

Psychotria archboldii Sohmer, *sp. nov.* Fig. 7.—Type: *Brass* 25828 (LAE, holotype; L, isotype), PNG: MILNE BAY PROV: Esa'ala Dist: Normanby I: Pabinama Mts, in rain forest on slopes ca. 600 m, 12 May 1956.

Arbores 2–8(–14?) m altae sunt, stipulis usque ad 2 cm longis solum in basi connatis in apice rotundatis vel fassis lobis rotundatis vel acuminato aristatis glabris vel in dorso pubescentibus, petiolis 1.7–7 cm longis, laminis 5.4 × 13.5–10.5 × 22 cm coriaceis vel crasse coriaceis obovatis varie oblanceolatis in basi attenuatis vel acutis in apice rotundatis vel breve acuminatis in sicco subluteis vel laterculi-rubri-brunneis in dimidio quoque cum 9–17 nervis lateralibus, inflorescentiis 16.5 cm longis axi solitario cum 3–5 nodis primariis eis plerumque cum ramulis verticillatis eis cum 1–2 cymulis, floribus 5-meris dimorphicis in pedicellis brevibus, hypanthio 1 m longo angusto, calycibus 1 mm longis patelliformatis in apice truncatis vel crenulatis, corollis albis subtenuibus tubo 10 mm longo extra glabro intra pubescenti, lobi, 5 mm longis anguste lanceo-oblongis in flore reflexi, antheris 1.5–2 mm longis, stigmatibus 1 mm longis, fructibus 12–13 mm longis 10–11 mm latis rubris turbinato-obovoideis subcompressis, pyrenis in dorso laevibus sine costis vel liris sed in apice in caudice tenui truncato attenuato, endospermo prominente ruminato.

Trees 2–8(–14?) m tall. Stipules valvate, fused only at base, glabrous or with pubescence on back, to 2 cm long, apex round or usually cleft, lobes then round or acuminate-aristate. Leaves with petioles 1.7–7 cm long; blades coriaceous to thickly coriaceous, glabrous, obovate to oblanceolate, 5.4 × 13.5–10.5 × 22 cm, lateral veins 9–17 per side, apex round or round with a short, acute or acuminate point, base attenuate or acute, drying a conspicuous yellowish or brick-reddish brown. Inflorescence with 1 main axis to 16.5 cm long, 3–5 primary nodes usually with verticillate branching at each, ultimate branches with 1–2 cymules of flowers. Flowers 5-merous, dimorphic, on short pedicels; hypanthium narrow, about 1 mm long; calyx saucer-shaped, about 1 mm long, apex truncate or crenulate; corolla white, somewhat thin in texture, the tube glabrous without, hairy within, about 10 mm long, lobes narrow lanceolate-oblong, about 5 mm long, reflexed at anthesis; anthers 1.5–2 mm long; stigmas about 1 mm long. Fruit red when ripe, turbinate-obovoid, somewhat flattened in one plane, 12–13 mm long, 10–

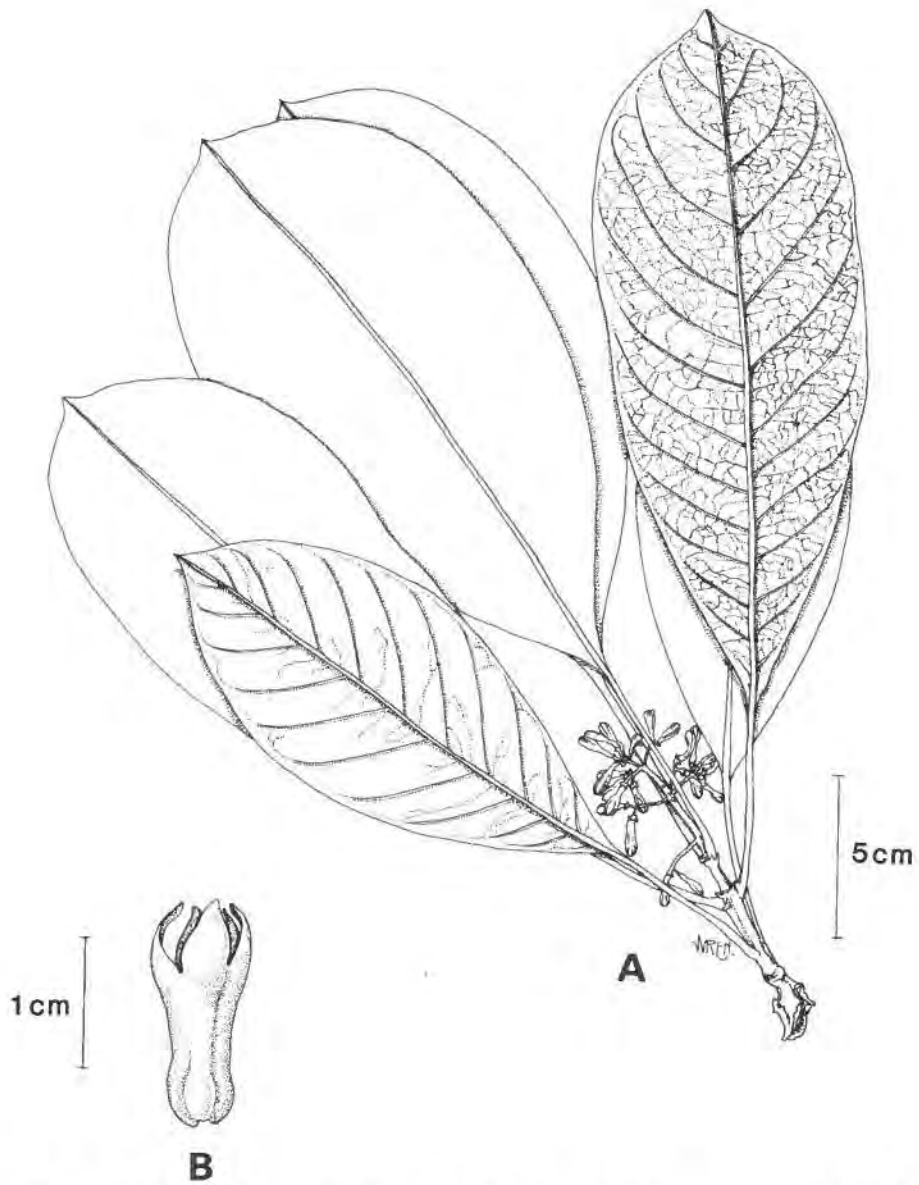


Fig. 7. *Psychotria archboldii* var. *archboldii*. Brass 25828 (LAE, holotype): A, habit of flowering branch; B, flower bud near anthesis.

11 mm in diameter. Pyrenes smooth on back, no ribs or ridges, drawn out into a thin, blunt tail at one end, endosperm very prominently ruminant.

This species is conspicuous in the herbarium by the leaf color and broadly round apices. It resembles *P. diplococca* but can be distinguished from it by the leaf apices, the stipules, and the number of lateral veins per side. It consists of at least 2 varieties, which may be separated by the following key:

1. Stipules leathery, usually round at apex, or if cleft the lobes acute or obtuse, not acuminate-aristate, glabrous; leaf blades with 9–14 lateral veins per side var. ***archboldii***
- Stipules coriaceous or chartaceous, not leathery, cleft, the lobes acuminate-aristate, hairy at back along main rib; leaf blades with 16–17 lateral veins per side var. ***multinervia***

Psychotria archboldii* var. *archboldii

Trees 2–7(–14?) m high. Stipules valvate, fused only at the base, thick and leathery, glabrous, ovate-oblong, about 1 cm long, apex round or sometimes cleft, lobes then obtuse to round. Leaves with petioles 1.7–7 cm long; blades thick-coriaceous, obovate-oblong, 5.4 × 15.5–10.5 × 20.5 cm, lateral veins 9–14 per side, apex round, or round with a short, acuminate point, base attenuate, drying a conspicuous yellowish brown. Inflorescence with 1 main axis to 16.5 cm long. Fruit red when ripe, turbinate-obovoid, somewhat flattened in one plane, 12–13 mm long and 10–11 mm broad. Pyrenes smooth on back, no ribs or ridges, drawn out into a thin, blunt tail at one end, endosperm very prominently ruminant.

Other Specimens Examined. PNG. Mo: Wareo, *Clemens* 1497 (L), 1595 (L); Finschhafen S.P.: Pindiu, *Hoogland* 8937 (L, LAE). MB: Alotau, *Kairo* 235 (CANB, L, LAE); Rabaraba S.P.: SE of Opanabu Vill, *Kanis* 1251 (L, LAE); Mt Paori above Mayu, *Streimann* NGF 28961 (BO, K, L, LAE); Esa'ala S.P.: Normanby I: N slope of Mt Rumabubu, *Benjamin* LAE 67863 (L, LAE, UPNG); Mt Pabinama, *Brass* 25721 (PNH, S); Lebudowa Riv, *Brass* 25836 (K, L, LAE, S); Woodlark I: Kulumadau, *Brass* 28693 (K, L, LAE); Sudest I: Mt Riu, *Brass* 27873 (BO, K, L, LAE, PNH, S). WNB: Kandrian S.P.: Mt Klangol NNE of Gasmata, *Croft & Katik* NGF 18488 (L, LAE).

Distribution. Lowland rain forests or lower montane rain forests in

New Britain, the nearest part of the New Guinea mainland, and islands of Milne Bay Province, from ca. 270 to 1,000 m elevation.

Remarks. This is a robust and ornamental tree. It may be closely related to *P. multipedunculata*, sp. nov.

Psychotria archboldii var. *multinervia* Sohmer, var. nov. Fig. 8.—Type: *White NGF 10711* (LAE, holotype; BO, K, L, isotypes), PNG: GULF PROV: banks of Panini Crk ca. 3 mi (4 km) from Middletown, from an 8 m tall tree.

Arbor 8 m alta est, stipulis 2 cm longis valvatis in apice fassis lobis acuminato-aristatis in dorso sequi midnervo pubescentibus, petiolis 2.8–3.5 cm longis, laminis 6 × 14–10 × 22 cm coriaceis obovatis in basi acutis in apice rotundatis et breve acutis in sicco laterculo-subrubri-badiis et in dimidio quoque cum 16–17 nervis lateralibus, inflorescentia cum axili solitario usque ad 9 cm longa, floribus incognitis fructibus 10–12 mm longis rubris obovoideo-turbinatis, endospermo ruminato.

Tree about 8 m tall. Stipules valvate, 2 cm long, pubescent along midrib on back, apex cleft, lobes acuminate-aristate, margins ciliate. Leaves with petioles 2.8–3.5 cm; blades coriaceous, obovate, 6 × 14–10 × 22 cm, lateral veins 16–17 per side, apex round with a short, acute point, base acute, drying a brick-reddish brown. Inflorescence with 1 main axis to 9 cm long. Flowers unknown. Fruits red when ripe, obovoid-turbinate, 10–12 mm long, endosperm ruminant.

Remarks. Only the type collection is known for this taxon. Its gross leaf and fruit morphology make it very similar to the nominate variety, from which it differs by the number of veins per leaf blade and the nature of the stipules. The latter characteristic could distinguish this taxon as a full species, but more material is needed for study. The label for the specimen gives the color of the fruit as white, but this must have been a transcription mistake.

Psychotria aseekiensis Sohmer, sp. nov. Fig. 9.—Type: *Sohmer & Kerenga LAE 75210* (LAE, holotype), PNG: MOROBE PROV: Wau Dist: Aseki Rd ca. 57 km from Bulolo, in montane forest on a ridge at 1,800–2,200 m, from a shrub about 1 m high, 1 May 1979.

Frutices 1 m alti parvi palanti sunt, stipulis usque ad 2 cm longis valvatis coriaceis in apice profunde fassis lobis acuto-acuminatis in dorso cum pilis in vivo subrubri-brunneis persistentibus, petiolis 1.5–2.2 cm longis, laminis elliptico-ob-

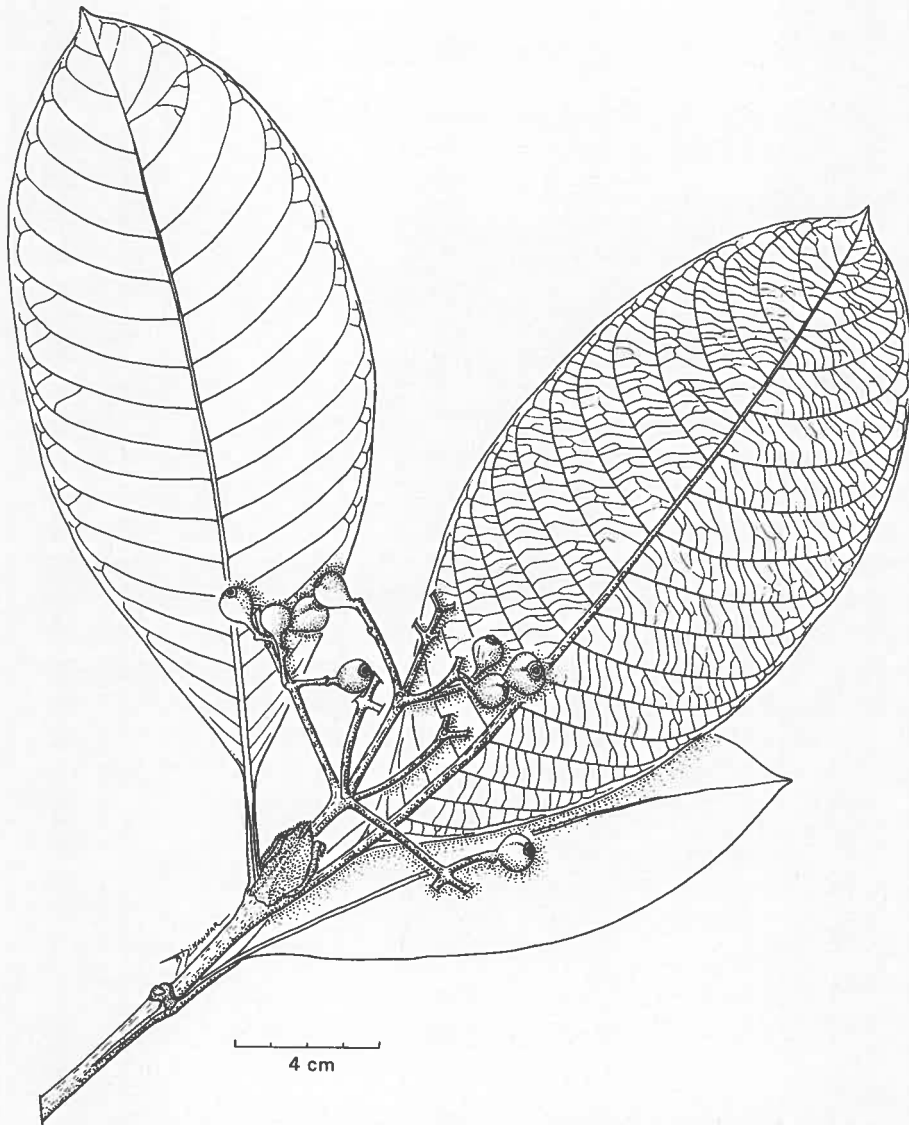


Fig. 8. *Psychotria archboldii* var. *multinervia*. White NGF 10711 (LAE, holotype): habit of fruiting branch.

longis 5.4 × 11–8 × 16 cm latis et longis in basi obtusis in apice acutis vel brevioribus acuminatis infra dumtaxat sequi costam pubescentibus nervis lateralibus 10–15 in dimidio quoque, inflorescentia dense caputiformi paulum majori quam stipulis circumdantibus, floribus 5-meris dimorphicis(?) sessilibus, hypanthio calycibusque

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Fig. 9. *Psychotria asekiensis*. Sohmmer & Kerenga LAE 75210 (LAE, holotype).

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4–5 mm longis, lobis 1 mm longis acutis obtusive omnino pubescentibus, corollis albis (immaturis), antheris ultra 2 mm longis, fructibus 8–9 mm longis (calyce excluso) ellipsoideo-globoso albis, pyrenis in dorso irregulariter manifeste costatis, endospermo ruminato.

Shrubs, small and straggly, about 1 m high. Stipules valvate, coriaceous, reddish brown (in vivo), hairs on back, persistent, ovate, to 2 cm long, apex deeply cleft, lobes acute-acuminate. Leaves with petioles 1.5–2.2 cm long; blades coriaceous, rugose, broadly elliptic-oblong, 5.4 × 11–8 × 16 cm, lateral veins 10–15 per side, pubescent below at least along costa, apex acute or very short acuminate, base obtuse. Inflorescence compact, headlike, less than 3 cm long, closely appressed by the stipules and not much larger than them. Flowers 5-merous, dimorphic(?), sessile; hypanthium and calyx together 4–5 mm long, lobes acute to obtuse, about 1 mm long, hairy throughout; corolla white, immature; anthers over 2 mm long in bud. Fruit white at maturity, ellipsoid-globose, 8–9 mm long (not including persistent calyx). Pyrenes with very irregular and inconspicuous ribbing on back, endosperm ruminant.

Other Specimens Examined. PNG. WS: Folongonom, *Veldkamp* 6706 (LAE), 6768 (L, LAE). Mo: Wau S.P.: Bulldog Rd, *Fallen* 538 (L, LAE), *Kerenga* LAE 76408 (LAE), LAE 76409 (L, LAE), LAE 76414 (LAE); Aseki Rd, *Sohmer & Kerenga* LAE 75241 (LAE), LAE 75252 (BISH, LAE).

Distribution. Mid to high elevation forests in northern New Guinea.

Distinguishing Features. A species distinctive by its rugose leaves, deeply cleft, villous stipules, and headlike inflorescence closely appressed by the stipules.

Psychotria aurea Lauterbach, in Lauterbach & Schumann, *Nachträge, Fl. Deutsch. Schützgeb. Südsee*, p. 396 (1905). Fig. 10.—Type: *Schlechter* 14309 (WRSL, lectotype, here designated), PNG: [probably in EAST SEPIK PROV]: Toricelli Mts.

Small trees or shrubs 1.5–4 m high. Stipules valvate, fused at base, smooth and glabrous, obovoid-oblong, to 2 cm long, apex round. Leaves with petioles 1.5–4 cm long; blades coriaceous, obovate-elliptic, 7 × 15.5–12.5 × 22 cm, lateral veins 9–10 per side often deeply impressed above and prominent below, apex with a short, acute or acuminate point, base acute and decurrent down petiole. Inflorescence somewhat contracted, in fruit to 5 cm long, main axis with 2–3 nodes, branching opposite or verticillate, ultimate branches with 2 or 3

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Fig. 10. *Psychotria aurea*. Schlechter 14309 (WRSL, lectotype).

cymules of 3 flowers. Flowers on short pedicels; hypanthium about 1 mm long; calyx tube flaring, bowl-shaped, less than 1 mm long; corolla thick in texture, tube glabrous without, hairy within at attachment of filaments, 10–14 mm long, lobes about 3 mm long; anthers about 1.5 mm long, not exerted in the pin flowers. Fruit red when ripe, turbinate-obovoid, about 8 mm long, 6 mm in diameter, the calyx not prominent on a short, stout pedicel (in vivo as much as 1.5 cm long). Pyrenes with several irregular folds and ribs on back, drawn out into a short, flat, obtuse tail at one end, endosperm ruminant.

Other Specimens Examined. PNG. W: Nomad Riv S.P.: Mt Bosavi, Jacobs 8707 (BISH, BO, L, LAE), 9448 (BISH, BO, L, LAE). WS: Telefomin S.P.: nr Frieda Riv, Henty & Foreman NGF 42596 (L, LAE).

Distribution. The rather scattered localities of the collections indicate that this species has a much wider distribution than is presently recorded. It is known from primary rain forests from ca. 400 to 800 m in West Sepik, East Sepik, and Western provinces.

Distinguishing Features. Leaf blades with lateral veins often deeply impressed above and prominent below; pyrenes drawn out into a broad, flat tail.

Psychotria axilliflora Merrill & Perry, J. Arnold Arbor. 27: 204 (1946). Fig. 11.— Type: *Kajewski* 2018 (A, holotype; SING, isotype), PNG: NORTH SOLOMONS PROV: Bougainville I: Koniguru, Buin, in rain forest at 900 m, a 12 m tall tree with “fruit orange when ripe,” 4 Aug 1930.

Trees 2–12 m high. Stipules valvate, glabrous, lanceolate-acuminate, narrow, to 1 cm long. Leaves with petioles 0.8–2 cm long; blades chartaceous, glabrous, ovate-oblong to elliptic-oblong, 2.5 × 8–9 × 22 cm, lateral veins 10–14 per side, apex acuminate, base obtuse to round. Inflorescence terminal, but becoming axillary by the continued growth of the stem, 1 main axis to 14 cm long, unbranched $\frac{1}{2}$ to $\frac{3}{4}$ its length from base, 3–4 primary nodes with opposite branches at each, the branches to 3 cm long, subtended by small, persistent, narrowly ovate bracts to 1 mm long, terminating in 1–3 cymules. Flowers 4- or 5-merous, dimorphic(?), sessile or on short pedicels; calyx and hypanthium together 1–1.2 mm long, apex truncate or with minute, acuminate lobes; corolla immature. Fruit red at maturity, fusiform or ovoid-fusiform in shape, flattened in 1 plane, wider below middle, with a prominent ridge toward the apical end on the flattened surfaces, 1–1.2 cm long. Pyrenes triangular in cross section, endosperm ruminant.

SOHMER: NEW GUINEA AREA PSYCHOTRIA

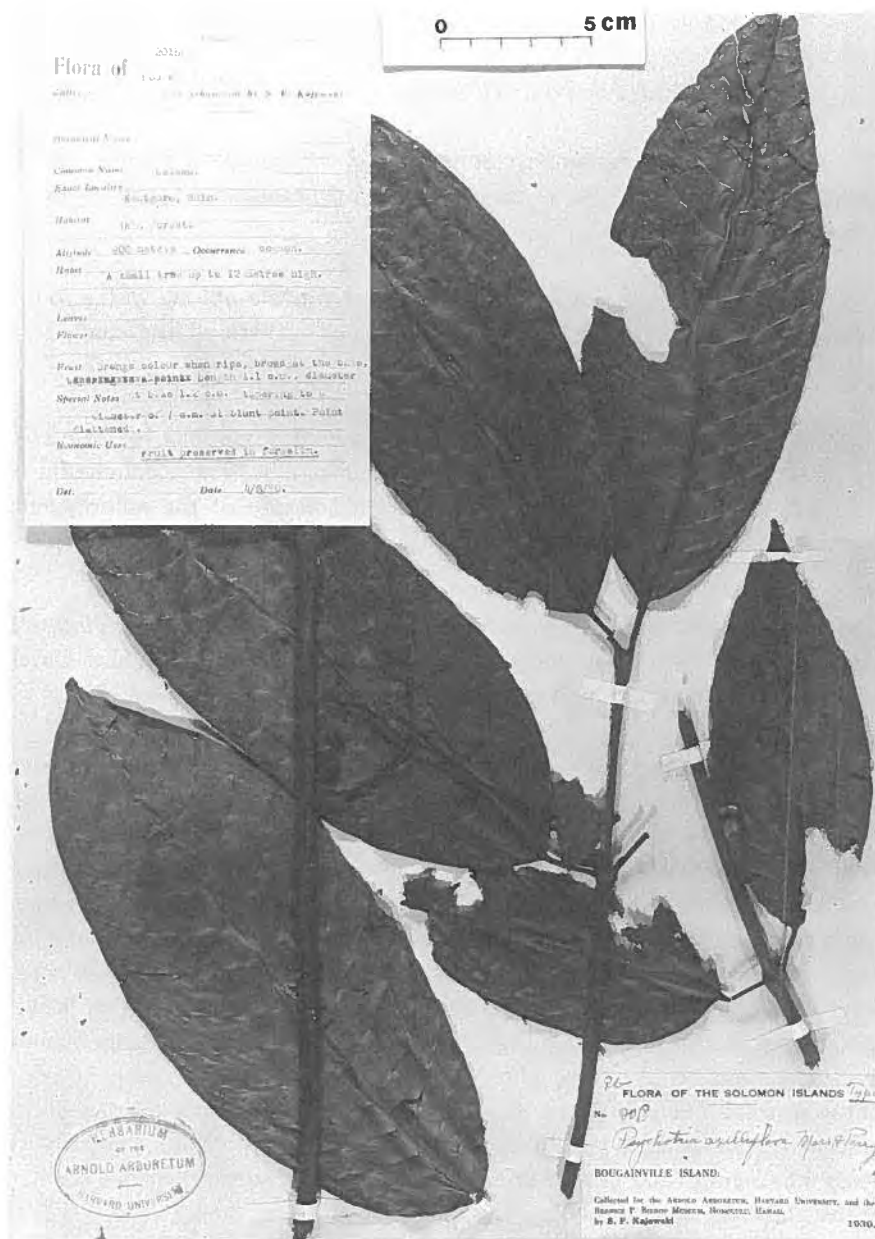


Fig. 11. *Psychotria axilliflora*. Kajewski 2018 (A, holotype).

Other Specimens Examined. PNG. NS: Bougainville I: Loloru Crater, Craven & Schodde 278 (CANB, LAE), 3797 (CANB, LAE), 3865 (CANB); Kapikani, Lavarack & Ridsdale NGF 31345 (L).

Distribution. Apparently restricted to the Solomon Islands (in the geographic, not political, sense) in rain forests or lower montane forests from ca. 400 to 900 m.

Distinguishing Features. Leaf blade often ovate-oblong with a round base; inflorescence becoming axillary by continued growth of the stem; fruit fusiform and flattened in 1 plane.

Remarks. This is a most unusual species of *Psychotria* for Papuaia. The fruit is shaped like an arrowhead with a tapering base. The combination of fruit shape, leaf blade shape, and the often axial nature of the inflorescence distinguish this species from all other species of *Psychotria* in the region.

Psychotria beaufortiensis Valetton ex Sohmer, *sp. nov.* Fig. 12.—Type: *Pulle 378* (K, holotype; BO, L, isotypes), IRIAN JAYA: Beaufort Riv, Third Dutch Expedition to southern part of then Dutch New Guinea, 15 Oct 1912.

Fruticulus vel suffrutex interdum unicaulis, puberulus siccando omnibus partibus obscure fuliginosus. Stipulae lanceolatae apice bifido lobis filiformibus, dorso hirsutae et ciliatae. Petiolae ovato lanceolatae 22 mm longae dorso villosae. Folia petiolata lanceolata vel oblongo-vel lineari-lanceolata utrinque attenuata acuta siccando rigida, nervis sat numerosis (13–18) tenuibus utrinque paullum conspicuis dorso sparsim pilosa pilis patulis. Panicula corymbosa pedunculata parva breviter pubescens, floribus parvis breviter pedicellatis. Calyx patelliformis ad cupularis subtruncatus vel acute denticulatus, corolla glabra in alabastro oblonga rotundata. Drupa ellipsoidea versus basin attenuata. Semen dorso costatum, spermodermis tenuis, albumen aequabile.

Shrub or small tree 0.5–2(?) m. Stipules valvate, ovate to lanceolate, 0.5–1 cm, pubescent on back, apex usually cleft, margin fringed or ciliate. Leaves with petioles 0.5–2 cm, often conspicuously hairy on upper surface; blades semicoriaceous, glabrous, narrowly elliptic, 1.2 × 6.5–3 × 11 cm, lateral veins 7–12 per side, apex long-acuminate, base acute to acuminate. Inflorescence less than 4 cm long, with 1 main branch $\frac{2}{3}$ – $\frac{3}{4}$ of total length, 1–2 nodes with verticillate branching at each, several flowers. Flowers 5-merous, glabrous without, on pedicels less than 0.5 mm long; hypanthium 0.5 mm, calyx tube less than 0.5 mm, lobes minute;

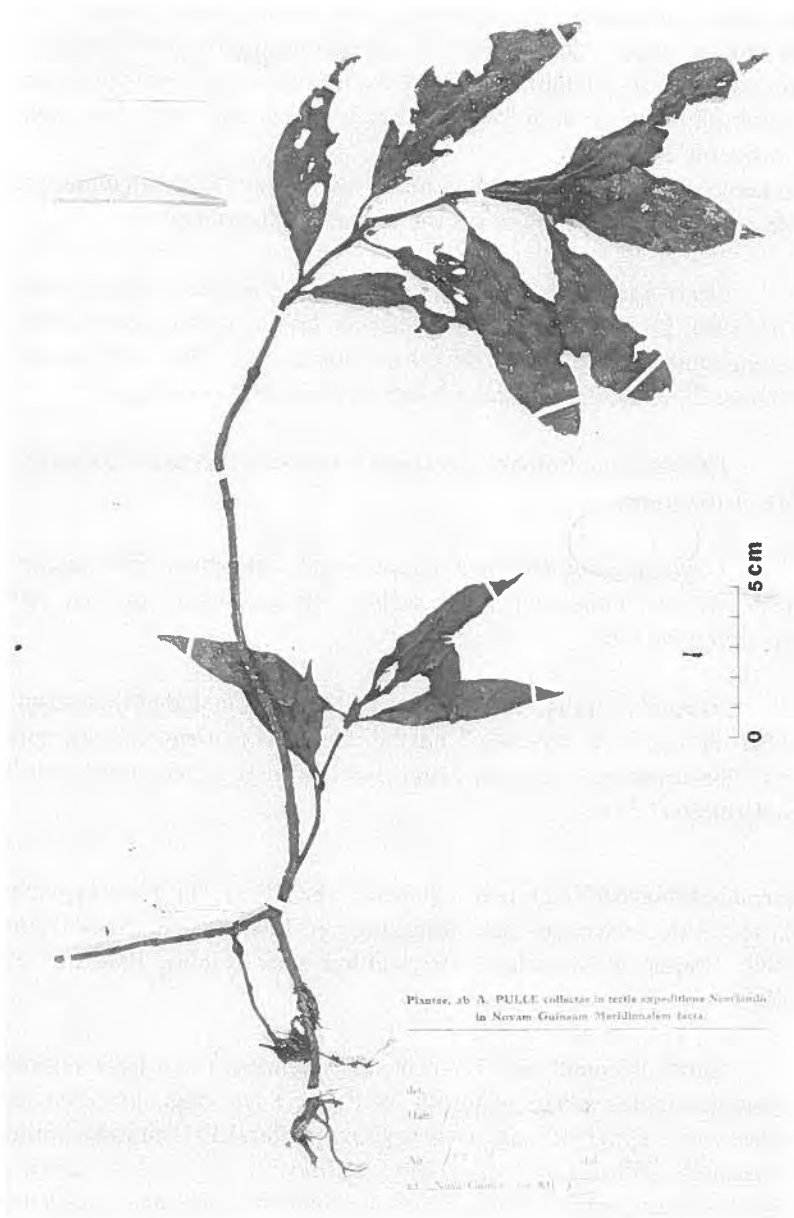


Fig. 12. *Psychotria beaufortensis*. Pulle 378 (K, holotype).

corolla white, tube about 1.5 mm long, hairy within, lobes linear, 1.5–2 mm; anthers (thrum flowers) about 1 mm; pistil (thrum flowers) with ovary globose, 0.2 mm long, style 1–1.5 mm long. Fruit color unknown (at maturity), presumed white, globose, about 10 mm long. Pyrenes with ribs and ridges on back, endosperm probably ruminant.

This taxon was recognized by Valeton in manuscript. I have herein utilized his Latin description but have modified the rest of his treatment.

Other Specimens Examined. IJ. Albatros Bivouac, *Docters van Leeuwen* 9138 (BO, L); Rouffaer Riv, *Docters van Leeuwen* 9838 (BO), 10142 (BO, L); Mamberamo Riv, *Lam* 493 (BO, L), *Thomsen* 691 (BO, L); Cyclops Mts, *Meijer Drees* 20 (BO), 29 (BO, L); Klamono, *Pleyte* 631 (BO, K, L).

Distribution. Primary rain forests from sea level to ca. 200 m in southern part of Irian Jaya.

Distinguishing Features. Leaves small, narrowly elliptic, apices long-acuminate, petioles pubescent; inflorescence delicate, small, compact, peduncle delicate, relatively long.

Remarks. In his 1927 publication, Valeton included this taxon in the key under the name "*P. obscura*," but he neglected to treat the new species in the text. The name he proposed would have become a homonym and has no nomenclatural validity.

Psychotria boloboensis Valeton, Bot. Jahrb. 61: 82 (1927). Fig. 13.—Type: *Schlechter* 16547 (K, lectotype, here designated; A, BM, L, LAE, S, isolectotypes), PNG: "Kaiser Wilhelmsland: Bergwäldern von Bolobo, 1000 m," 11 Sept 1907.

Shrub or small tree 1.5–3 m tall, glabrous; twigs light yellow-green when young. Stipules valvate, glabrous, ovate, to 1 cm long, apex cleft, margins sometimes with a fringe of hairs. Leaves with petioles 0.5–1 cm long; blades thin, semicoriaceous, glabrous, oblong, elliptic, or obovate, 2 × 6–5 × 12 cm, lateral veins 9–13 per side, apex obtuse, acute or acuminate, base acute to acuminate. Inflorescence white, prominent on living plant, 8–13 cm long, main axis unbranched $\frac{1}{2}$ – $\frac{2}{3}$ of length from base, 2–4 primary nodes with verticillate or, infrequently, opposite, branching at each, ultimate branches terminating in spreading cymules. Flowers 5-merous, dimorphic, glabrous, on pedicels 2–3 mm long; hy-

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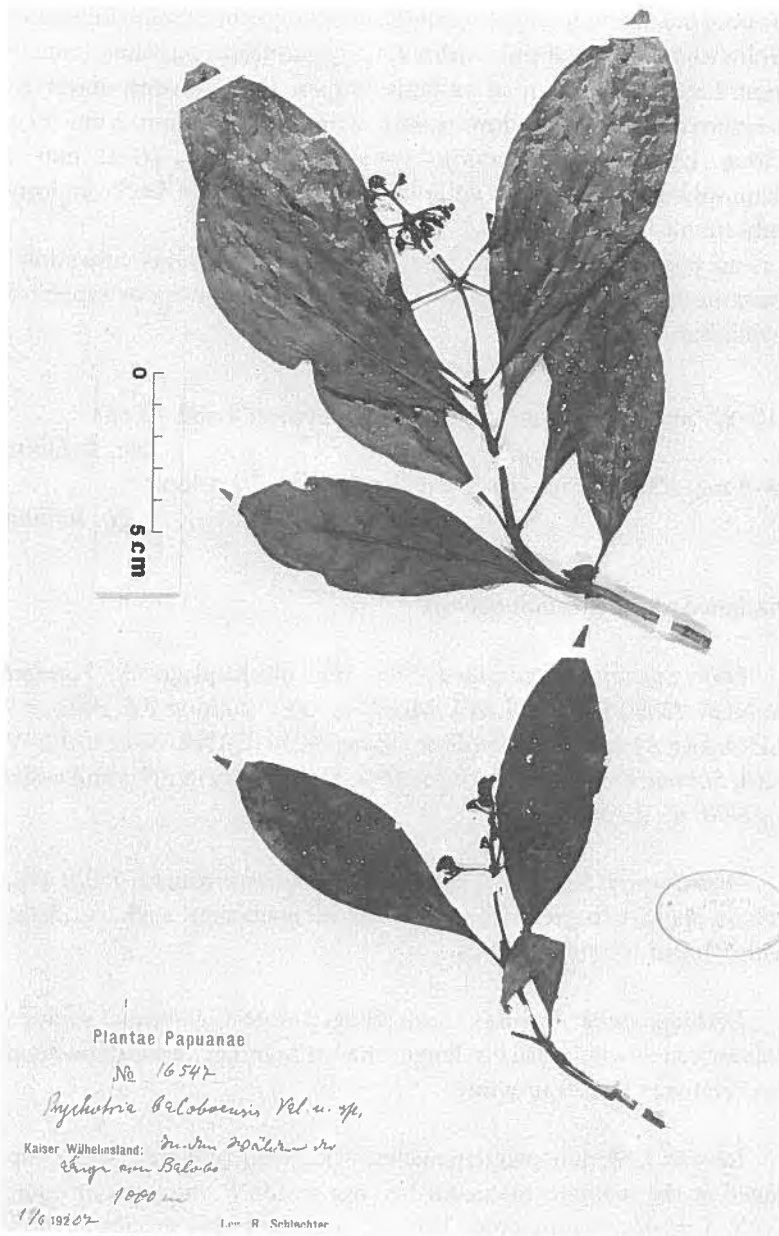


Fig. 13. *Psychotria boloboensis* var. *boloboensis*. Schlechter 16547 (K, lectotype).

panthium about 0.6 mm long; calyx about 0.2 mm long, tube minute, lobes obtuse-acute; corolla white, tube glabrous without, hairy within, about 4 mm long, lobes ovate, about 2 mm long, rotate at anthesis; anthers in pin flowers about 1 mm long, not exerted; pistil in pin flowers with style exerted about 2 mm beyond corolla throat. Fruit white at maturity, somewhat turbinate, 10–12 mm long. Pyrenes hemispherical in outline, without strong ribbing on back, endosperm prominently ruminant.

There is no known modern equivalent of Bolobo where this collection was made. There are apparently 2 varieties of this species, which can be separated by the following key:

1. Fruit 10–12 mm long; inflorescence usually between 8 and 13 cm var. *boloboensis*

 Fruit 8–9 mm long; inflorescence usually less than 7 cm long
 var. *balimensis*

Psychotria boloboensis var. *boloboensis*

Other Specimens Examined. PNG. SH: Lake Kopiago S.P., Vanderberg & Galore NGF 42093 (BO, K, LAE). Mo: Wau S.P.: Bulldog Rd, Allison WEI 1337 (BISH, LAE); Aseki Val, Schodde & Craven 5052 (CANB, K, L, LAE); Wau-Kaisenik Rd, Sohmer & Kerenga LAE 75245 (LAE); locality in PNG and collector unknown, NGF 65 (LAE).

Distribution. A taxon of low to mid elevations from ca. 1,100 to 2,000 m. This taxon appears to prefer the drier, well-drained sites, such as ridges and slopes, within moist montane forests.

Distinguishing Features. Leaf blades smooth, glabrous, shiny, apex obtuse; inflorescence white, usually longer than subtending leaves; flowers pedicellate and relatively few; fruit white.

Remarks. With its white panicles, white fruit, and cleft, ovate stipules often fringed at the margin, this taxon belongs to the *P. micrococca* complex. The smooth, glabrous, yellow-green leaves characterize this species in the field. It differs from typical *P. micrococca* (Lauterbach & Schumann) by the often oblong leaves obtuse at the apex, and the inflorescence only ½ as long as the subtending leaves. *Psychotria direpta* Wernhaus, *P. katikii*, sp. nov., *P. kelelensis* Valetton, *P. hollandiae* Valetton, and *P. ramulosa* Merrill & Perry also belong

to this complex; all should be studied in more detail. *Psychotria randiana* var. *tafaensis* Merrill & Perry is also similar to this taxon and only the larger fruit size of the latter separates them.

Psychotria boloboensis Valetton var. *balimensis* (Merrill & Perry) Sohmer, comb. nov. Fig. 14.

Psychotria balimensis Merrill & Perry, J. Arnold Arbor. 27: 209 (1946).—Type: *Brass* 11679 (A, holotype; BM, BO, isotypes), IRIAN JAYA: Balim Riv, on the muddy banks of a stream at 1,600 m, Dec 1938.

Shrubs 1–2.5 m tall. Stipules valvate, fused at base, glabrous, ovate-elongate, to about 1 cm long, apex acute and not cleft. Leaves with petioles 0.6–1.5 cm long; blades coriaceous, glabrous, obovate-oblong, 1.5 × 3.5–4.5 × 9 cm (not counting microleaves that appear irregularly), lateral veins 10–15 per side, apex acute to abruptly short-acuminate, base obtuse to acute. Inflorescence somewhat delicate, to about 7 cm long with the peduncle, or unbranched main axis $\frac{1}{2}$ – $\frac{3}{4}$ this length, generally 3 primary nodes with verticillate branching, the branches short, to about 1 cm long, each generally branched once more and terminating in relatively widely spaced cymules, puberulous throughout. Flowers 5-merous, dimorphic(?), sessile or subsessile; calyx tube and hypanthium 1 mm long, cupular tube a little less than 1 mm long, apex nearly truncate, or undulate; corolla tube glabrous without, about 2.5 mm long, villous at throat within, lobes ovate-subulate, as long or slightly longer than tube; anthers (pin flowers) about 1 mm long, definitely fertile (in example seen), barely exerted or exerted not at all beyond throat of corolla tube; style (pin flowers) about 5 mm long, stigmas divergent, 1 mm long; corolla tube [thrum(?) flowers] to 3.5 mm long; anthers (thrum flowers) 1.5 mm long, exerted 1.5–2 mm beyond throat of corolla tube; stigmas (thrum flowers) quite receptive in appearance and divergent with receptive areas of stigmatic surfaces apparently held right at level of corolla throat and surrounded by the hairs. Fruit white, obovoid, 8–9 mm long and 4–5 mm wide at full maturity. Pyrenes with 3–5 irregular ridges on back, endosperm strongly ruminant.

Other Specimens Examined. IJ. Baliem Val, *Kostermans & Soegeng* 860 (BO, K, L); Wasabori, nr Seroei, *Aët & Idjan* 361 (BO, L); Mamberamo Riv, *Docters van Leeuwen* 11341 (BO, L); Wissel Lake area, *Eyma* 4363 (BO, L), 5430 (BO, L). PNG. SH: Lalibu, *Womersley & Wooliams* NGF 37013 (K, L).

Distribution. Apparently found in wet, mid-montane forests near streams and rivers.

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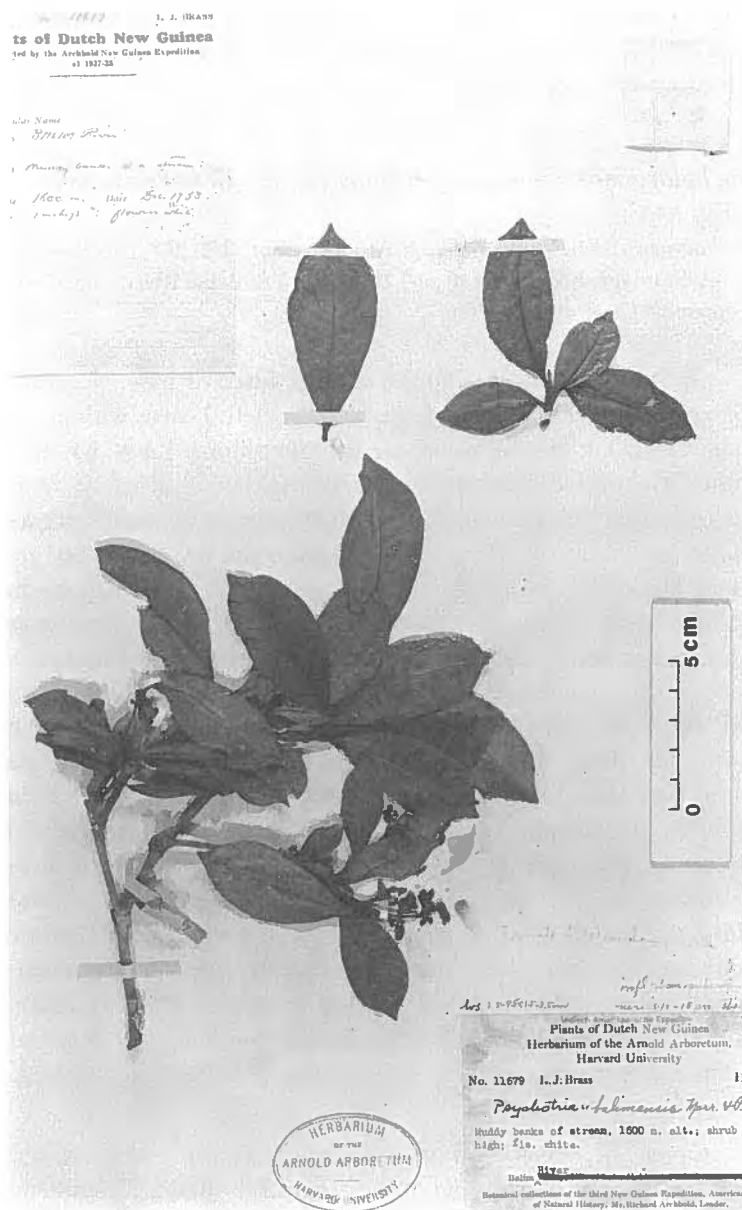


Fig. 14. *Psychotria boloboensis* var. *balimensis*. Brass 11679 (A, holotype).

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Distinguishing Features. Shrub 1 m tall; leaf blades usually less than 7 cm long, obovate-oblong on short petioles; inflorescence small, to 7 cm, with corolla tube to 2.5 mm long.

Remarks. The authors indicated (Merrill & Perry, op. cit.) that this taxon might be related to *P. wernhamiana* Moore. I have not seen type material for the latter. From my own understanding of the genus in New Guinea, I recognize a phenotypic resemblance between this taxon and *P. randiana* Merrill & Perry.

Psychotria bracteosa Valetton, in Lorentz, Nova Guinea 8: 490 (1911). Fig. 15.—

Type: *Versteeg 1885* (K, lectotype, here designated; BO, L, U, isolectotypes), IRIAN JAYA: nr Merauke.

Psychotria lolokiensis Moore, J. Bot. (London) 67: 49 (1929).—Type: *Brass 898* (A, lectotype, here designated; BM, K, isolectotypes), PNG: CENTRAL PROV: National Capital Dist: Haga, Laloki Riv.

Psychotria chrysocarpa Merrill & Perry, J. Arnold Arbor. 27: 197 (1946).—Type: *Brass 10989* (A, holotype; BM, BO, LAE, isotypes), IRIAN JAYA: 9 km NE of Lake Habema, 2,800-m Camp.

Trees 3–6(–12?) m high. Stipules valvate, not fused to each other, caducous, thick-coriaceous, glabrous, ovate, to 5 mm long, apex round or with a blunt point. Leaves with petioles 0.8–2.5 cm; blades semicoriaceous to stiffly coriaceous, glabrous, elliptic to obovate to nearly orbicular, 2.2 × 5.2–9 × 14 cm, lateral veins 8–10(–14) per side, apex acute, round to nearly retuse, base acute, acuminate or obtuse. Inflorescence axes often white or whitish at anthesis, either with 1 main axis with verticillate branching at 2–3 primary nodes, or, more commonly, the main axis appearing to terminate in a whorl of 5 equal branches, the main axis in either case unbranched for $\frac{1}{2}$ – $\frac{1}{3}$ its length from base, the branches subtended by persistent, conspicuous, ovate or orbicular bracts to 2.5 mm long. Flowers 5-merous, conspicuously dimorphic, sessile; calyx and hypanthium together 1–4 mm long (small in pin flower), apex truncate or with small obtuse lobes; corolla white, texture thick and somewhat fleshy, tube 2–3 mm (pin flowers), 4–6 mm (thrum flowers), either moderately hairy within or profusely hairy with hairs conspicuous at throat, lobes lanceolate to lanceolate-linear, 3–6 mm long, reflexed at anthesis; anthers about 1.5 mm long (pin flowers), 2–2.5 mm long (thrum flowers); style and stigmas well exerted in pins. Fruit red when ripe, ellipsoid-globose, 5–7 mm long, calyx usually persistent and prominent at apex. Pyrenes smooth on back or with inconspicuous ribs or ridges, endosperm ruminate.

I have designated the sheet at K as lectotype as that was the specimen of the



Fig. 15. *Psychotria bracteosa* Valet. Versteeg 1885 (K, lectotype).

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type collection that I was able to examine while resident in New Guinea. There are 2 sheets of the type collection at L, and these were designated as isolectotypes. It is stated on one of the Leiden sheets that the type collection was made from a shrub 4 m high with white flowers and pedicels.

Other Specimens Examined. IJ. Merauke Dist: Merauke, *Pasdoor?* *s.n.* (BO), *McKee* 1755 (K); NE of Lake Habbema, Bele Riv, *Brass* 11578 (BM, BO, L). PNG. EH: Goroka S.P.: Marafunga logging area, *Brown* 369 (LAE). W: Bensbach Riv, *Paijmans* 342 (CANB), *Leach* UPNG 3884 (UPNG); Daru S.P.: Wassi Kussa Riv, *Henty* NGF 49642 (L, LAE), *Brass* 8527 (BM, BO, L, LAE), 8630 (A, BM, BO, L, LAE), *Kwapena* WLL 1116 (LAE, UPNG); Daru I, *Brass* 6277 (A, BO, L). Ce: National Capital S.P.: Port Moresby area, *Heyligers* 73-5 (UPNG); Rubulogo, *Pullen* 6714 (CANB, L, LAE); UPNG Botanic Garden, *Frodin* 503 (UPNG); nr Tovobada, *Ivalaoa s.n.* (UPNG), *Heyligers* 1247 (CANB, LAE); Waigani, *Gillison* NGF 22020 (BO, L, LAE), *Kwapena* WLL 69 (LAE, UPNG), WLL 129 (LAE, UPNG), WLL 216 (LAE), WLL 1307 (UPNG); Motupore I, *Frodin* UPNG 3193 (UPNG); Mt Eriama, *Gillison* NGF 22178 (BISH, BO, L, LAE, PNH, SING); Korobosea Hill, *Huxley s.n.* (UPNG); Little Mt Lowes, *Pullen* 6813 (K, L, LAE, SING); Browa Riv, *McDonald* NFG 8231 (BO, K, L, LAE, PNH, SING); Laloki Riv, *Havel & School* NFG 17381 (BFC, BO, CANB, K, L, LAE, SING, UPNG), *Gebo* 205 (UPNG), *Brass* 3671 (BO); Laloki Rd, *Gebo* UPNG 265 (LAE, UPNG); Riso S.P.: nr Kwikila, *Womersley* NGF 43891 (L, LAE); nr Gerechu, *Dodd s.n.* (L, UPNG); [Ce:] without locality data, *Powell* UPNG 2305 (UPNG), 2312 (UPNG), *Carr* 11083 (L, SING).

Distribution. Apparently distribution greater than the records would indicate as there are collections from widely separated areas in Irian Jaya and Papua New Guinea. Most collections are from areas within easy reach of Port Moresby. A species of drier habitats, as found abundantly in the savannahlike vegetation of the Port Moresby area, as well as the physiologically dry habitats along edges of mangrove swamps near sea level. Also found in montane forests to 2,650 m.

Distinguishing Features. Leaf blades often round at apex, thickly coriaceous, smooth and shiny; inflorescence with conspicuous, persistent bracts at base of branches and cymules.

Remarks. Valetton (op. cit.) originally described this taxon from material collected by Versteeg in what was then Dutch New Guinea. The material is not exactly typical but is definitely of the same taxon as that described by

Moore as *P. lolokiensis*. Merrill & Perry (1946) recognized the possibility that these 2 taxa were essentially the same but did not have the type material for Moore's species at hand. They wanted to avoid lumping because in doubt. They stated that "although the descriptions are very similar, we have hesitated to make the reduction on this alone, . . ." I have no such doubts, as I have had access to all the type material concerned.

Merrill & Perry (op. cit.) also described *P. chrysocarpa*, a species they recognized as being very closely related to *P. bracteosa*. *Psychotria chrysocarpa* differs from *P. bracteosa* principally by having a main axis that terminates with 2-3 clearly identifiable nodes, rather than appearing to terminate in a spray of 5 equal branches. This characteristic, as well as the other, lesser characteristics given by Merrill & Perry to distinguish *P. chrysocarpa* are bridged by some of the specimens from Western Province. These specimens were not available to Merrill & Perry, who had only the Brass collection from the NE part of Dutch New Guinea, which stood out in sharp relief against the material from what is now Central Province.

Another feature of interest in *P. bracteosa* is the strongly dimorphic flowers. There is also, of course, some natural variation in flower size unrelated to the type of flower produced by a given plant. When one obtains a pin flower of those individuals that produce smaller flowers to begin with, and compares it with a thrum flower of an individual which produces larger flowers, the result is quite startling.

There is a strong morphological resemblance between *P. bracteata* Sw. from Central America and this taxon. The resemblance in leaf size, shape, and inflorescence architecture is quite close and merits further study. I am also nearly convinced that *P. bracteosa* is conspecific with *P. mariana* Bartl. ex DC.

***Psychotria butibumensis* Sohmer, sp. nov.** Fig. 16.—Type: *Hartley TGH 9623* (LAE, holotype; CANB, K, L, isotypes), PNG: MOROBE PROV: Lae Dist: Butibum Riv, 7 mi (11.25 km) N of Lae, in lowland rain forest, at ca. 65 m, 24 Dec 1961.

Arbores graciles 6-10 m altae sunt, caulibus juvenalibus in sicco a pilis pallide badiis velatis, stipulis valvatis usque ad 1.5 cm longis in basi connatis ovato-oblongis in apice acutis vel obtusis non bifidis extra crasse pilosis, petiolis 1-3.5 cm longis, laminis 4 × 8-8 × 17 cm latis longisque oblongo-obovatis semicoriaceis supra glabris infra crasse velatis cum pilis brevibus albis basi obtusa subrotunda truncatave apice longe acuminato nervis lateralibus 8-15 in dimidio quoque, inflorescentia cum axi principali unico 9-21 cm longis plerumque brevior quam

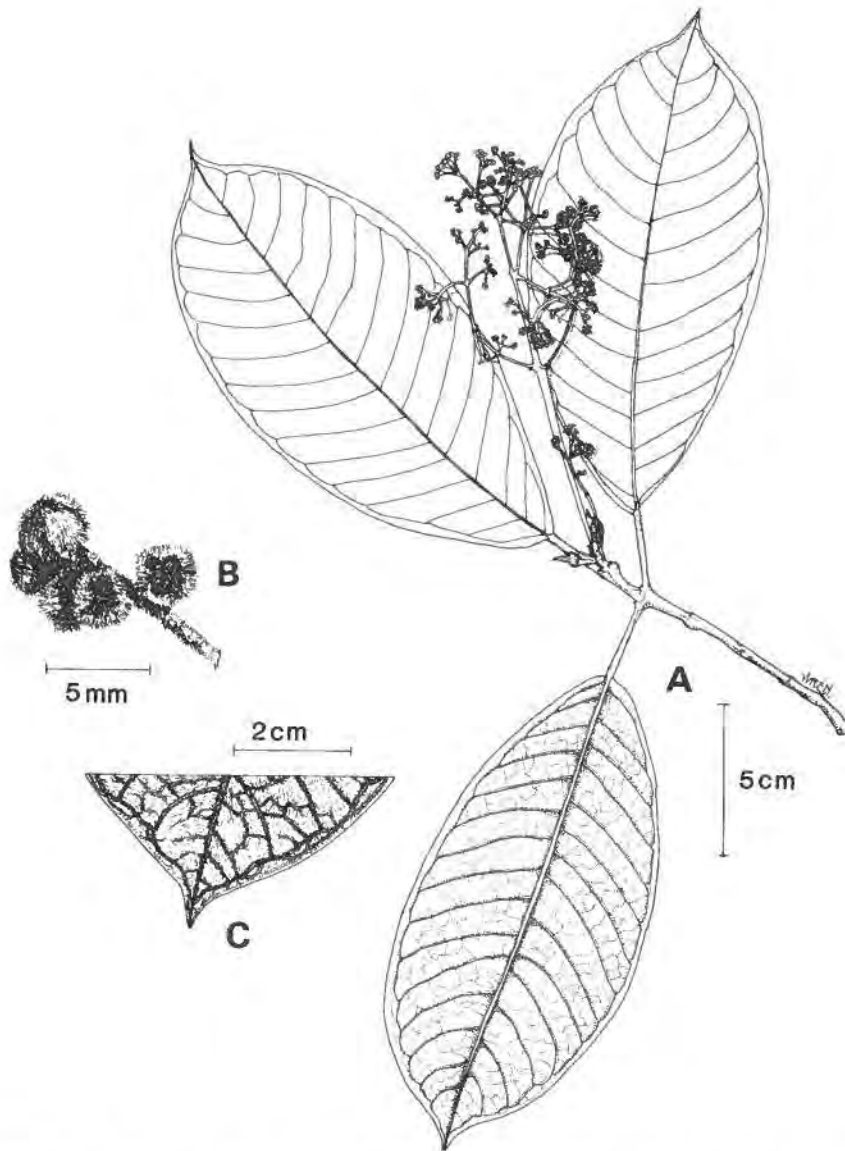


Fig. 16. *Psychotria butibumensis*. Hartley TGH 9623 (LAE, holotype): A, habit of flowering branch; B, portion of inflorescence showing several flower buds covered with hairs; C, lower surface of portion of leaf blade showing hairs.

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foliis sustentis parte basali $\frac{1}{3}$ - $\frac{1}{2}$ eramosa nodis primariis 3-4 omnibus biramosis, axilibus dumtaxat in juvente velatis cum pilis albis subtilibus ramulis in apicibus cum cymulis congregatis dense velatis cum pilis subluteis saepe cum 2 axilibus parvis basilibus dimorphicis(?) sessilibus vel in pedicellis minutis hypanthio et calyce minus quam 1 mm longo, corollis glabris tubo minus quam 0.5 mm longo intra glabro, lobis 1 mm longis ovatis, antheris 0.1 mm longis paulum exsertis, stigmatibus paulum exserto, stylo 0.5-0.6 mm longo, fructibus 4 mm diametro glabro rubro, pyrenis non costatis, endospermo ruminato.

Slender trees 6-10 m tall; young stems covered with pubescence that is light brown when dry. Stipules valvate, fused at base, ovate-oblong, to 1.5 cm long, covered with a dense pubescence, apex acute or obtuse, not cleft. Leaves with petioles 1-3.5 cm long; blades semicoriaceous, glabrous above, oblong-obovate, 4×8 - 8×17 cm, lateral veins 8-15 per side, thick covering of short white hairs below, apex long-acuminate, base obtuse to nearly round or truncate. Inflorescence with 1 main axis 9-21 cm long, usually shorter than the subtending leaves, unbranched $\frac{1}{3}$ - $\frac{1}{2}$ its length from base, 3-4 primary nodes with opposite branching at each, often with 2 small lateral axes from the base, the axes, at least when young, with a thick covering of fine white hairs, ultimate branches terminating in tight clusters of cymules and covered with the same dense pubescence but often appearing yellowish in color. Flowers minute, 5-merous, dimorphic(?), sessile or on minute pedicels; hypanthium and calyx together not over 1 mm long, densely pubescent, corolla glabrous, tube less than 0.5 mm long, no hair within, lobes ovate, about 1 mm long; anthers 0.1 mm long, barely exserted; stigmas barely exserted, style only 0.5-0.6 mm long. Fruit red, globose, about 4 mm in diameter. Pyrenes not ribbed, endosperm ruminant.

Other Specimens Examined. PNG. Mo: Rawlinson Range, *van Royen* NGF 16234 (L, LAE); Lae Botanic Gardens, *Hartley* TGH 9643 (BO, CANB, K, L, LAE), *Henty* NGF 9825 (BO, L), *White* NGF 9696 (L, LAE), *Wright* NGF 11101 (L, LAE); Butibum Riv, *Hartley* 9843 (CANB, L, LAE, SING); Busu Riv, *Thorne & Henty* 27440 (L); Bumbu logging area, *Henty* NGF 16677 (BO, CANB, L, LAE, SING); Huon Gulf area, without further data, *Herre* 212 (NY); Finschhafen, *Sawyer* 224 (L).

Distribution. Apparently localized in Morobe Province in lowland rain forests below 70 m.

Distinguishing Features. Leaf blades usually round to truncate at base, dense, white pubescence below, venation below very prominent; inflorescence axes often with a dense yellowish-white pubescence, at least when young; flowers

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minute, less than 2 mm long at anthesis, corolla lobes reflexed or rotate, 2× the length of the approximately 0.5 mm tube.

Remarks. This species most likely is related to the *P. micrococca* complex and, most particularly, to *P. hollandiae*. The Henty 16677 specimen has larger, more prominently truncate blades at base. The inflorescence of that specimen also has a longer inflorescence than the other specimens. If the inflorescence trichotomous from base is not a valid character, then this taxon could probably be combined with *P. hollandiae*.

Psychotria chonantha (Gilli) Sohmer, **comb. nov.** Fig. 17.

Caelospermum chonanthum Gilli, Ann. Naturhist. Mus. Wien 83: 458 (1980).—Type: Gilli 336 (W, holotype), PNG: WESTERN HIGHLANDS PROV: Mt Wilhelm.

Psychotria aundensis van Royen, Alpine Fl. New Guinea 4: 2710 (1983).—Type: Kairo & Streimann NGF 35765 (LAE, holotype—not seen; BFC, L, K, isotypes), PNG: WESTERN HIGHLANDS PROV: Mt Wilhelm and Wissel Lakes area.

Psychotria kuborensis van Royen, Alpine Fl. New Guinea 4: 2712 (1983).—Type: Vink 16146 (BISH, holotype; K, L, LAE, isotypes), PNG: WESTERN HIGHLANDS PROV: Kubor Range.

Shrubs or small trees 1.5–3(–5) m high. Stipules valvate, in vivo often stark white in color against the dark green of stem and leaf, thick, smooth, glabrous, broadly obovate, to 2.5 cm long, summit generally acute or round, not cleft. Leaves with petioles 0.8–2.5 cm; blades coriaceous (generally), smooth and glabrous, ovate-elliptic to obovate-elliptic, 2.2 × 5.8–7.7 × 13 cm, lateral veins 9–11 per side, apex a short, acute point, base obtuse, acute or acuminate. Inflorescence with 1 main axis, often unbranched $\frac{1}{2}$ or more its length from base providing a long peduncle and a pendent inflorescence, or with a short peduncle usually to 3 cm long, branching opposite with ultimate branches terminating in 1 to several stalked cymules, cymules and branches subtended by linear bracts, to 6–7 mm long. Flowers 5-merous, dimorphic, glabrous, on long pedicels to 8 mm long; hypanthium about 1 mm long; calyx saucer-shaped, spreading, 1.5–2 mm long, lobes short, obtuse; corolla white, fleshy, tube glabrous within, to about 12 mm long, of equal width from base to summit, lobes ovate-oblong, about 5 mm long, reflexed at anthesis; anthers about 2 mm long, sessile. Fruit white at maturity, globose-ovoid, 7–9 mm long. Pyrenes without discernible ridges at back, endosperm ruminant.

Other Specimens Examined. PNG. SH: Mt Giluwe, Onim, Ash ANU 20377 (LAE). Ce: Lake Myola area, Croft & Lelean NGF 34951 (K, L, LAE). M:

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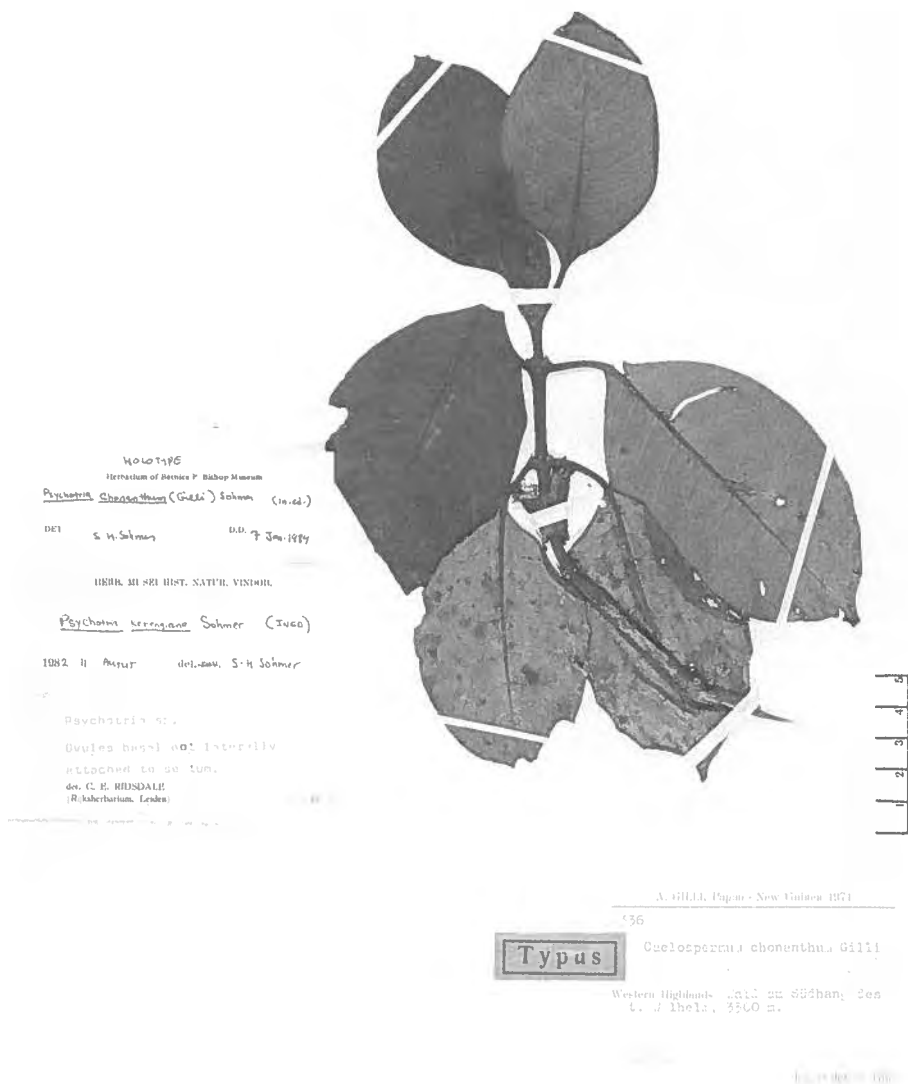


Fig. 17. *Psychotria chonantha*. Gilli 336 (W, holotype).

Saidor S.P., *Sayers* NGF 21374 (L). WH: Wahgi-Jimi Divide, *Womersley* NGF 5321 (K, LAE); Mt Oga, *Pullen* 121 (CANB), 143 (CANB); Mt Hagen, *Paijmans* 1131 (LAE), *Robbins* 292 (LAE), *Stevens* LAE 50272 (BO, CANB, K, L), *Wheeler* ANU 6377 (L); Keglsugl-Mt Wilhelm Rd, *Philippon & Philippon* 3413 (K); Mur Mur Pass, *Sohmer et al.* LAE 75532 (LAE). C: Mt Wilhelm, *Van Balgooy*

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404 (K, L, LAE, SING), *s.n.* (L, LAE), 758 (K, L, LAE), *Borgman* 82 (K, L, LAE), *Brass* 30213 (L, LAE, NY), 30559 (K, L, LAE), *Hope* ANU 10629 (CANB), ANU 10651 (CANB), ANU 10656 (CANB), *McVean & Wade* ANU 7226 (CANB, LAE), *Smith* ANU 15213 (CANB, L, LAE), *Sohmer et al.* LAE 75468 (LAE), LAE 75491 (LAE), LAE 75492 (LAE), LAE 75493 (LAE), *Vandenberg* NGF 39502 (BO, K, L, LAE), *Verdcourt & Barker* 4906 (K, LAE), *Wade* ANU 7267 (L, LAE), ANU 7620 (CANB), *Womersley* NGF 8898 (BO, K, L, LAE); Kerowagi, *Katik* LAE 74838 (L); Kuaki Riv nr Toromambuno Mission, *Pullen* 285 (CANB); Pengagl, *Millar & Sayers* NGF 19917 (BO, CANB, K, L), NGF 23695 (LAE), NGF 23730 (L, LAE); Keglsugl, *Kairo & Streimann* NGF 35765 (BFC, K, L), *Stone* LAE 53232 (L, LAE). EH: Marafunga, *Streimann & Kairo* NGF 45,407 (BFC, CANB, K, LAE), *Womersley & Sleumer* NGF 13978 (L, LAE), *Womersley* NGF 37387 (BISH, BO, K, L, LAE, PNH); Mt Kerigoma, *Hoogland & Pullen* 5593 (L, LAE), *Stevens* LAE 54551 (L), *Stevens & Grubb* LAE 54648 (L, LAE); Mt Michael, *Brass* 31439 (BO, K, L, LAE), *Sohmer et al.* LAE 75459 (LAE), *Womersley* NGF 11443 (A, LAE); Mt Piora, *Croft & Akakavara* LAE 68138 (L, LAE), *Sands et al.* SAND 1544 (L); Mt Otto, *Foreman et al.* NGF 48046 (L, LAE), *Johns & Noble* 47044 (L, LAE), NGF 47138 (L, LAE); Goroka, *Womersley & Floyd* NGF 6114 (LAE); Daulo, *McKee & Floyd* NGF 6709 (LAE). Mo: Mt Kaindi, *McAdam* 231 (CANB).

Distribution. Common in the high-elevation primary or disturbed montane forests of the Highlands of Papua New Guinea between 1,700 and 3,300 m. Most of the collections are from the Eastern Highlands and Chimbu provinces. This does not necessarily reflect a greater abundance in these as opposed to the other Highland provinces, nor does the absence of herbarium specimens from Irian Jaya infer it does not exist on that part of the island. I suspect that more collecting on the western side of the island will turn up representatives of this taxon.

Distinguishing Features. Stipules thick, obovate, not cleft at apex; leaf blades coriaceous, round-elliptic; calyx tube saucer-shaped, flaring; corolla tube glabrous within, to 1.2 cm long, even width throughout.

Remarks. Gilli (1980) described a relatively large number of new taxa based upon collections he made in Papua New Guinea in 1974, as well as some material collected by H.C. Dosedla in PNG in 1971. As van Steenis (1982) has pointed out, many of these taxa are not new and, indeed, several are misidentified to genus and even to family. One of Gilli's new taxa was a species described for the genus *Caelospermum*. This turns out to represent a taxon of *Psychotria* that

van Royen described as 2 new species in that genus in 1983 (op. cit.), a taxon I had myself conceptualized as potentially new in 1979.

The glossy, dark green foliage and white, thick, obovate stipules make this taxon easy enough to recognize; however, the leaf form and the length of the peduncle are variable, and it is sometimes difficult to separate it from specimens of *P. randiana*. In fact, were it not for the size of the stipules in *P. chonantha* and the flower-bearing portion of the inflorescence being much more compact than that in *P. randiana*, I would not have recognized the present taxon.

Van Royen apparently annotated none of the specimens at LAE. In 1983, with van Royen's new publication in hand, I searched for the specimen that he had designated as holotype for *P. aundensis*. There was no trace of it at LAE, although I had annotated that specimen in 1979 as a member of my proposed new taxon. Van Royen's illustration is clear enough, however, and I have no difficulty placing it in this assemblage. The taxon he designated as *P. kuborensis* may be an example of the variability of this assemblage and probably does not warrant recognition as a distinct taxon. The type collections cited for the latter taxon are at LAE, and I have annotated both sheets as isotypes. The specimen at BISH was designated holotype, and this I annotated as such. Van Royen's key characteristics (shape and vestiture of the stipules) break down quickly when one studies all of the material available. This is but 1 example of the problems associated with the herculean task of producing a flora for a specific area, as Van Royen has done for the alpine flora of New Guinea, when the area does not include the full ranges of the taxa treated.

Psychotria chrysantha Merrill & Perry, J. Arnold Arbor. 27: 200 (1946). Fig. 18—
Type: Brass 4881 (A, holotype; BO, K, isotypes), PNG: CENTRAL PROV:
Mt Tafa, in forest regrowth at 2,400 m, May–Sept 1933.

Trees 3–15 (2–25?) m high. Stipules valvate, glabrous, ovate-oblong, to about 1 cm long, apex usually obtuse or round, not cleft. Leaves with petioles 0.5–1.8 cm long; blades coriaceous, glabrous, obovate to elliptic, 1 × 3.7–4 × 9.2 cm, lateral veins 7–11 per side, apex acute to short-acuminate, base acute. Inflorescence usually with 1 main axis up to 12 cm long, unbranched for $\frac{1}{2}$ – $\frac{2}{3}$ its length from base, 2 smaller, but similar, lateral branches from base of the main one, each axis with 2–3 primary nodes with opposite, infrequently verticillate, branching at each, the branches smaller versions of the main axes, usually covered with a minute pubescence and the terminal branches generally with 3 stalked cymules. Flowers 4- or 5-merous, dimorphic(?), on small pedicels; hypanthium and calyx together 1.3–1.8 mm long, lobes prominent, thick, acute; corolla usually

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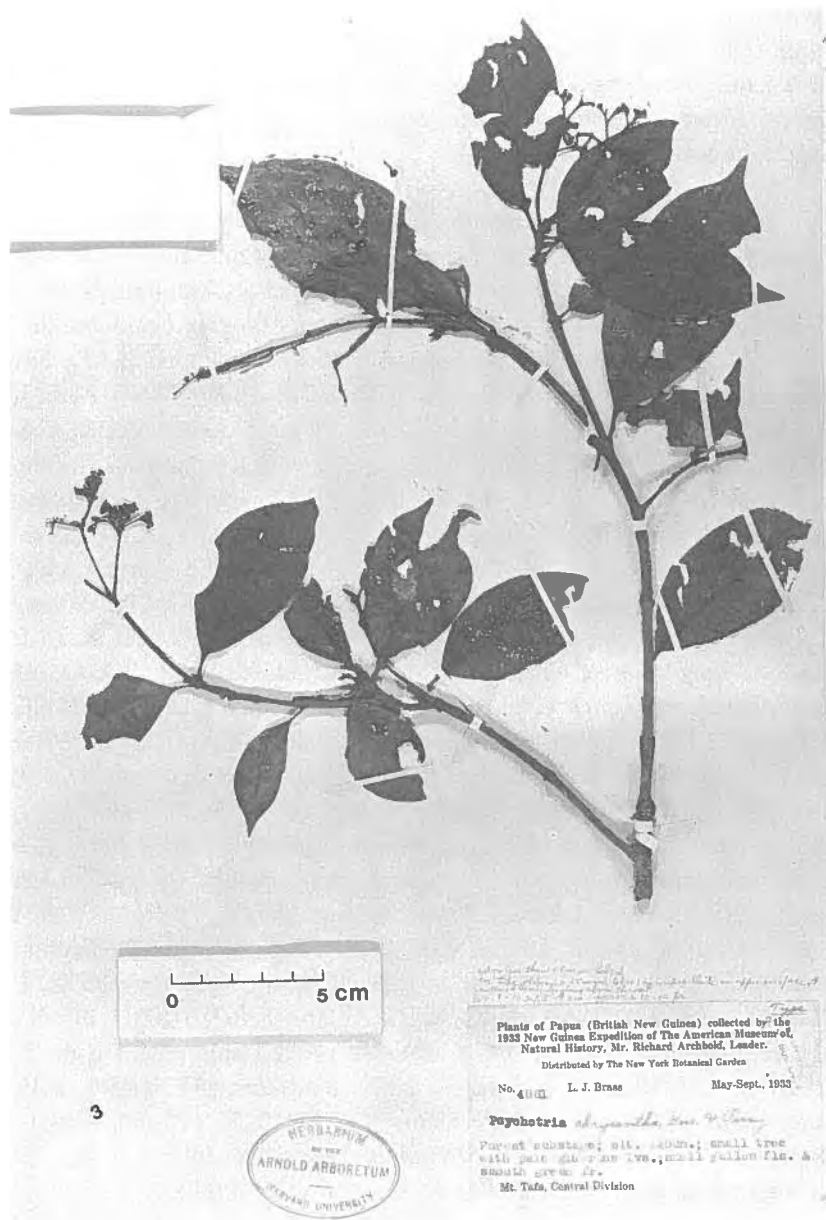


Fig. 18. *Psychotria chrysantha*. Brass 4881 (A, holotype).

yellow or yellowish, neither thin nor fleshy in texture, tube glabrous within, up to 2 mm long, lobes ovate, about 1 mm long, rotate at anthesis; anthers only about 0.5 mm long; stigmas always included(?). Fruit red when ripe, obovoid-globose, 5–6 mm long. Pyrenes with convoluted surface, not ribbed or ridged, endosperm prominently ruminate.

Other Specimens Examined. IJ: Manokwari Dist: Vogelkop: Arfak Gita Lake, *Kostermans* 2523 (BO); Wandammen Pen: Wondimoi Mts, *Koster* BW 13736 (BISH, BO, L, LAE). PNG: WS: Telefomin S.P.: Oksapmin, *Henty et al.* NGF 41721 (K, L, LAE). E: Liagam S.P.: Yabobos, *Hoogland & Schodde* 7553 (CANB, L, LAE); Wagab S.P.: M. Kaligari Vill, *Robbins* 3366 (LAE); Siruuki, *Walker* ANU 880 (L, LAE); nr Kupalis, *Flenley* ANU 2348 (CANB, K, L, LAE), ANU 2369 (CANB, LAE); Pagaup-Pau, *Flenley* ANU 2732 (CANB, K, L, LAE); Pompabus, *Flenley* ANU 2783 (CANB, K, L, LAE). WH: Kompiai S.P.: Jimi Val, *Manner* UPNG 3005 (LAE, UPNG); Mt Hagen S.P.: upper Kangel, *Bowers* 549 (LAE); Tambul-Mandi Rd, *Womersley* NGF 14240 (K, L, LAE); Nebiyer Riv, *Stevens & Veldkamp* LAE 54895 (BO, CANB, K, L, LAE); Tambul S.P.: Mur Mur Pass area, *Sohmer et al.* LAE 75530 (BO, LAE), LAE 75531 (LAE), *Streimann* 8437 (LAE). SH: Tari S.P.: nr Tari Gap, *Gillison* NGF 25222 (BO, K, L, LAE); Mendi S.P.: Kagoba area, *Coode & Katik* NGF 32910 (BISH, BO, CANB, K, LAE), *Womersley & Leach* LAE 55268 (BISH, BO, K, L, LAE, PNH, SING). C: Kundiawa S.P.: Mt Wilhelm, *Brass* 30786 (K, L, LAE). EH: Mt Michael, *Sohmer et al.* LAE 75426 (LAE); Kainantu S.P.: Kassam Pass, *Henty & Coode* NGF 29179 (BO, CANB, K, L, LAE, SING), *Stauffer & Sayers* 5564 (A, CANB, K, L, LAE); nr Akuma, *Hartley* 12071 (CANB, L, LAE); nr Kainantu, *Hartley* 12941 (CANB, L, LAE); nr Aiyurov, *Smith* NGF 1046 (L, LAE); Kainantu-Okapa Rd, *Hartley* 12,121 (CANB, L, LAE); Okapa S.P.: nr Omarua, *Hartley* TGH 11951 (CANB, K, LAE); nr Purosa, *Brass* 31838 (K, L, LAE, NY); Goroka S.P.: Fatima Riv, *Buderus* NGF 23906 (BISH, BO, K, L, LAE), *Grubb & Edwards* 35 (L, LAE), 145 (L, LAE), *Millar* NGF 40736 (BO, K, L, LAE), NGF 40786 (BISH, BO, CANB, K, L, LAE); Mt Otto, *Robbins* 846 (CANB, L, LAE); Daulo area, Divide, *Pullen* 381 (CANB, L, LAE), 486 (CANB, L, LAE), *Saunders* 837 (CANB, L, LAE); Kortuni, *Floyd & Womersley* NGF 6780 (BO, CANB, K, L, LAE, SING). Mo: Menyamy S.P.: Oliva-Hamu Rd, *Streimann* LAE 51968 (BO, L, LAE); Kaiapit S.P.: Kassam Pass area, *Streimann & Kairo* NGF 27656 (BO, K, L, LAE); Wau S.P.: Aseki Rd, *Sohmer & Kerenga* LAE 75221 (BO, BISH, LAE); nr Wau, *Pratt* 1167 (LAE); Lae S.P.: Vuop Riv, *Kerenga* LAE 76425 (LAE). W: Mt Bosani, *Jacobs* 9291 (BISH, L, LAE), 9359 (BISH, BO, L, LAE). Ce: Goilala S.P.: between Omoretu & Nairirauava, *Hartley* TGH 13057 (A, CANB, L, LAE, SING). MB: Raba Raba S.P.: Goropu Mts, *Stevens & Veldkamp* LAE 55529 (CANB, LAE),

Veldkamp & Stevens 5892 (BISH, L, LAE). ENB: Mt Lululua, *Isles et al.* NGF 34422 (CANB, K, L, LAE), *Stevens & Lelean LAE 58279* (L, LAE); Rabaul S.P.: Lackit, *Ridsdale & Katik NGF 38031* (BISH, K). New Britain, without further data, *Dissing et al.* 2342 (L).

Distribution. Widely distributed throughout New Guinea and also East New Britain at high elevations, generally between 1,000 and 3,000 m with most collections from above 2,500 m, in primary or secondary montane forests.

Distinguishing Features. Trees usually large, most over 8 m tall; leaf blades less than 9.2 cm long; corolla yellow or yellowish, the tube glabrous within, less than 2 mm long; fruit red when ripe, obovoid-globose, 5–6 mm long.

Remarks. This species stands out among Papuanian *Psychotria* not merely because of its yellow or yellowish corollas, but by the heights that some of the individual trees attain. On the label of 1 specimen, *Bowers 549* (LAE), it is noted that the individual was 6 m tall but the species "can reach ca. 80 ft [24 m]." The tallest individual I collected during my fieldwork was 10 m, which is still outstandingly high for Papuanian *Psychotria*. It may represent a high elevation adaptation of *P. micralabastra*, which it resembles in plant size, inflorescence and flower structure, size, and morphology.

***Psychotria chrysanthoides* Sohmer, sp. nov.** Fig. 19.—Type: *Craven & Schodde 1142* (LAE, holotype; K, L, LAE, isotypes), PNG: MOROBE PROV: Aseki Dist: nr Haumuga, at 2,000 m, 1 Apr 1966.

Arbores parvae vel frutices 4–5 m alti sunt, stipulis usque ad 1 cm longis valvatis ovatis glabris apice acuto-acuminato non fisis, petiolis 0.8–1.5 cm longis, laminis 3 × 6–7 × 14.5 cm rigide coriaceis ellipticis basi obtusa vel subtruncata apice acuminato marginibus revolutis nervis lateralibus 9–16 in dimidio quoque eis infra prominentibus, inflorescentia ex basi trichotoma, axi principali usque ad 12 cm longo eramoso ramis oppositis vel verticillatis et ex basi cum ramulis duobus minoribus, floribus incognitis excepta hypanthio et calyce 1–1.5 mm longis sessilibus vel breve pedicellatis, fructibus 4–5 mm longis rubris obovoideis in basi in caule brevi deminuentibus paulum bilobatis, pyrenis in dorso laevibus, endospermo ruminato.

Small trees or shrubs 4–5 m tall. Stipules valvate, glabrous, ovate, to 1 cm long, apex acute-acuminate, not cleft. Leaves with petioles 0.8–1.5 cm long; blades stiffly coriaceous, elliptic, 3 × 6–7 × 14.5 cm, lateral veins 9–16 per side, very

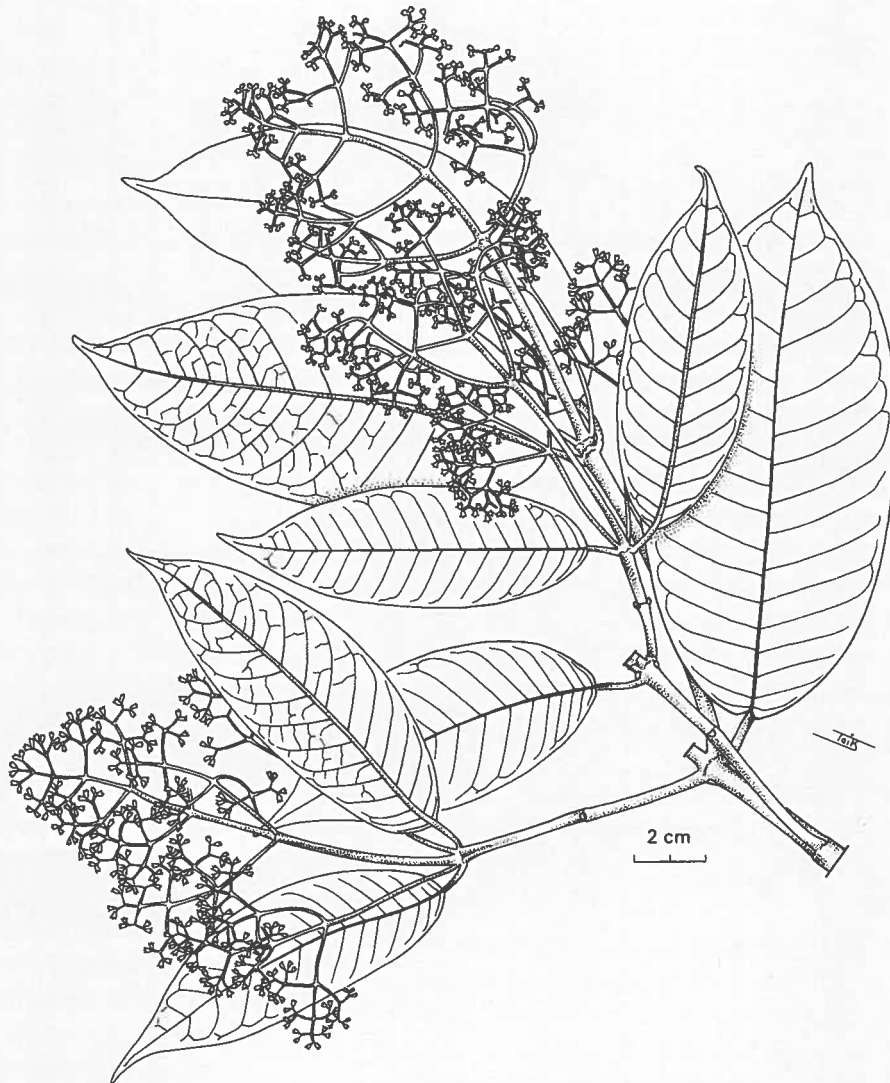


Fig. 19. *Psychotria chrysanthoides*. Craven & Schodde 1142 (LAE, holotype): habit.

prominent below, apex acuminate, margins revolute, base obtuse to nearly truncate. Inflorescence trichotomous from base, 1 main axis to 12 cm long, unbranched $\frac{1}{2}$ - $\frac{2}{3}$ its length, 2 smaller but similar axes from base, branching opposite or verticillate. Flowers unknown except for calyx and hypanthium, which together are 1-1.5 mm long, sessile or on short pedicels. Fruit red when ripe, obovoid,

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narrowed at base to a short, stout stalk, somewhat bilobed, 4–5 mm long. Pyrenes smooth on back, endosperm ruminant.

Other Specimens Examined. IJ. Biak I, Aët & Idjan 885 (L). PNG. Mo: Aseki S.P.: nr Aseki, Schodde & Craven 5054 (CANB, LAE).

Distribution. Montane forests from 1,300 to 2,000 m.

Distinguishing Features. Stipules valvate; leaf blades stiffly coriaceous, margins revolute, base obtuse to nearly truncate; inflorescence trichotomous; fruit red when ripe.

Remarks. I treat this species as new because it cannot be placed in any existing taxon.

Psychotria conglobata Valetton, in Lorentz, Nova Guinea 8: 492 (1911). Fig. 20.—
Type: *Versteeg* 1580 (L, lectotype, here designated; BO, isolectotype), IRIAN JAYA: “Südwest Neu Guinea. Noord-Fluss beim Geluks-Hugel.”

Trees or shrubs. Stipules valvate. Leaves with petioles 1.9–3 cm long; blades chartaceous to semicoriaceous, lanceolate to obovate, 4.3 × 14.3–9.3 × 17.8 cm, lateral veins 11–15 per side. Inflorescence with 1 short peduncle terminated by a headlike cluster of sessile flowers. Flowers 4- to 5-merous; corolla probably white; anthers and pistils unknown. Fruit red at maturity. Pyrenes unavailable for study.

I have been able to study the Versteeg specimen at Leiden and have designated it as lectotype. I have seen 1 other collection that can be referred to this taxon, although it is on the basis of overall impression, as the condition of the type specimens makes it difficult to match and the original description is not very critical.

In addition to the Versteeg collections, Valetton (op. cit.) cites a *von Römer* 508 collection near “Geluks” hill in the vicinity of what was known as the “Noord-Fluss.” The Versteeg collection was made from a shrub 1.5 m tall and the von Römer collection from a tree, size not given.

Other Specimens Examined. IJ. Vogelkop: Warnapi, N of Ransiki, *Kostermans* 4741 (BO, K, L, PNH, SING).

Remarks. According to Valetton (op. cit.) this taxon is similar to *P.*

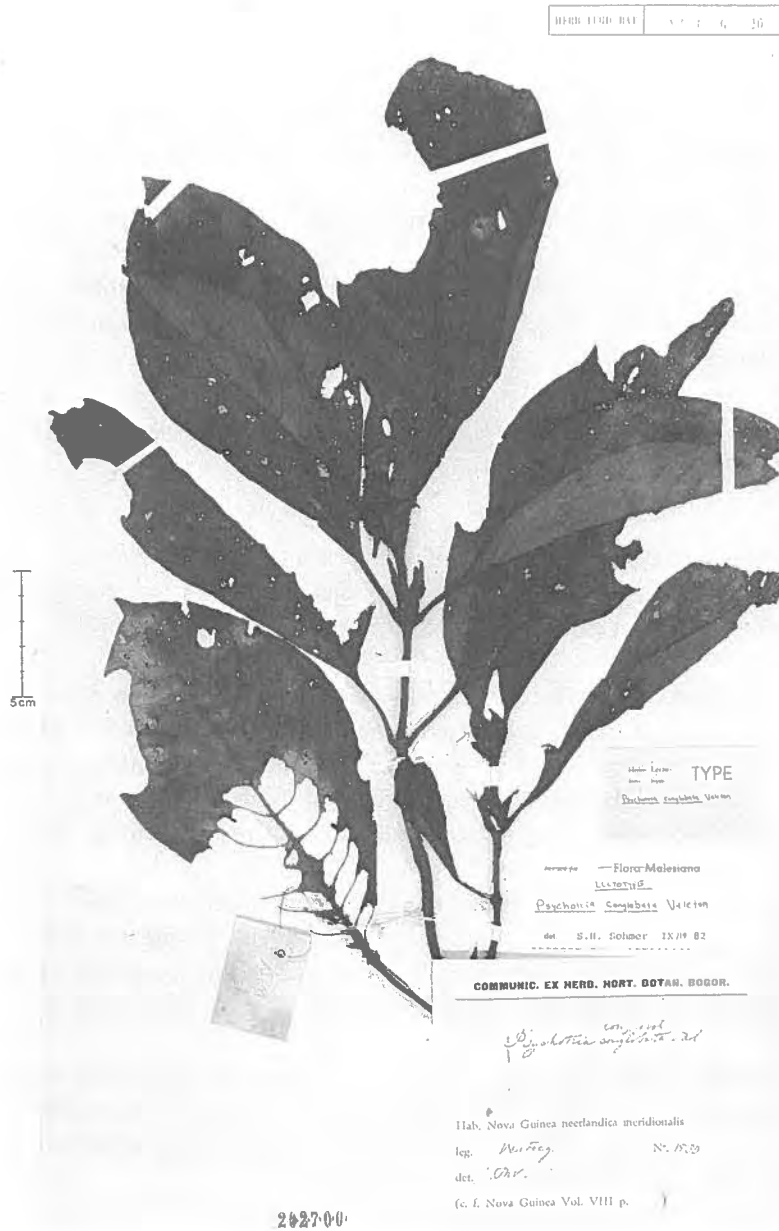


Fig. 20. *Psychotria conglobata*. Versteeg 1580 (L, lectotype).

phaeochlamys. If I have interpreted the latter taxon sufficiently, there is little or no resemblance between it and *P. conglobata* other than in the sessile flowers. The leaf shape, form, and venation bear a distinct resemblance to what has been recognized here as *P. wichmannii*, but the compact nature of the inflorescence belies a relationship.

Psychotria conglobatioides Sohmer, sp. nov. Fig. 21.—Type: *Koster BW 1414* (L, holotype), IRIAN JAYA: Vogelkop: Salawati I: Kaloal, primary forest at 5 m.

Frutex ca. 1.5 m altus est, ramulis pubescentibus, stipulis 1 cm longis profunde fassis lobis ca. 4 mm longis conspicue aristatis, foliis 0.5–1.5 cm longis laminis 3×10 – 4×16.5 cm chartaceis varie semicoriaceis ellipticis varie elliptico-ob lanceolatis apice acuto basi acuti-acuminata infra pubescentibus praecipue in nervis, nervis 8–12 in dimidio quoque, inflorescentia sessili vel cum pedunculo breviori, floribus plerumque 10, bracteis compluribus intra stipulis et in magnitudo et numero irregulari, floribus 4- vel 5-meris dimorphicis (?) sessilibus, hypanthio et tubo calycis 2–3 mm altis, fere tam grandis acuto-acuminatis omnino pubescentibus, corollis albis crassis extra pauce pubescentibus, tubo 4 mm longo in fauce piloso, lobis 4 mm longis subtilibus, antheris 1 mm longis in floribus pinaceis inclusis et stylo 6–8 mm longo, stigmatibus 1 mm longis exsertis, fructibus rubris(?) 5–7 mm longis et fere tam latis globosis pubescentibus, pyrenis laevibus in dorso pauce angulosis, endospermo non ruminato.

Shrub about 1.5 m tall; twigs pubescent. Stipules valvate, 1 cm long, apex deeply cleft, lobes prominently aristate and nearly $\frac{1}{2}$ stipular length. Leaves with petioles 0.5–1.5 cm; blades chartaceous to semicoriaceous, elliptic to elliptic-ob lanceolate, 3×10 – 4×16.5 cm, lateral veins 8–12 per side, pubescent below, particularly on veins, apex acute, base acute-acuminate. Inflorescence sessile, or with a very short peduncle, flowers about 10, bracts several, irregular in size and number within the floral stipules. Flowers 4- or 5-merous, dimorphic(?), sessile; hypanthium and calyx tube together 2–3 mm long, lobes nearly as long, acute-acuminate, pubescent throughout; corolla white, thin in texture, lightly pubescent without, tube about 4 mm long, hairy at the throat, lobes thin, as long as tube; anthers about 1 mm long, not exserted in pin flowers; pistil with style 6–8 mm long in pin flowers, stigmas about 1 mm long, exserted. Fruit red(?) at maturity, globose, 5–7 mm long and nearly as broad, pubescent. Pyrenes somewhat angled at back, smooth, endosperm not ruminated.

Distinguishing Features. Stipules cleft, lobes aristate; inflorescence sessile or nearly so; calyx and corolla pubescent, the tube about 4 mm long; endosperm not ruminated.

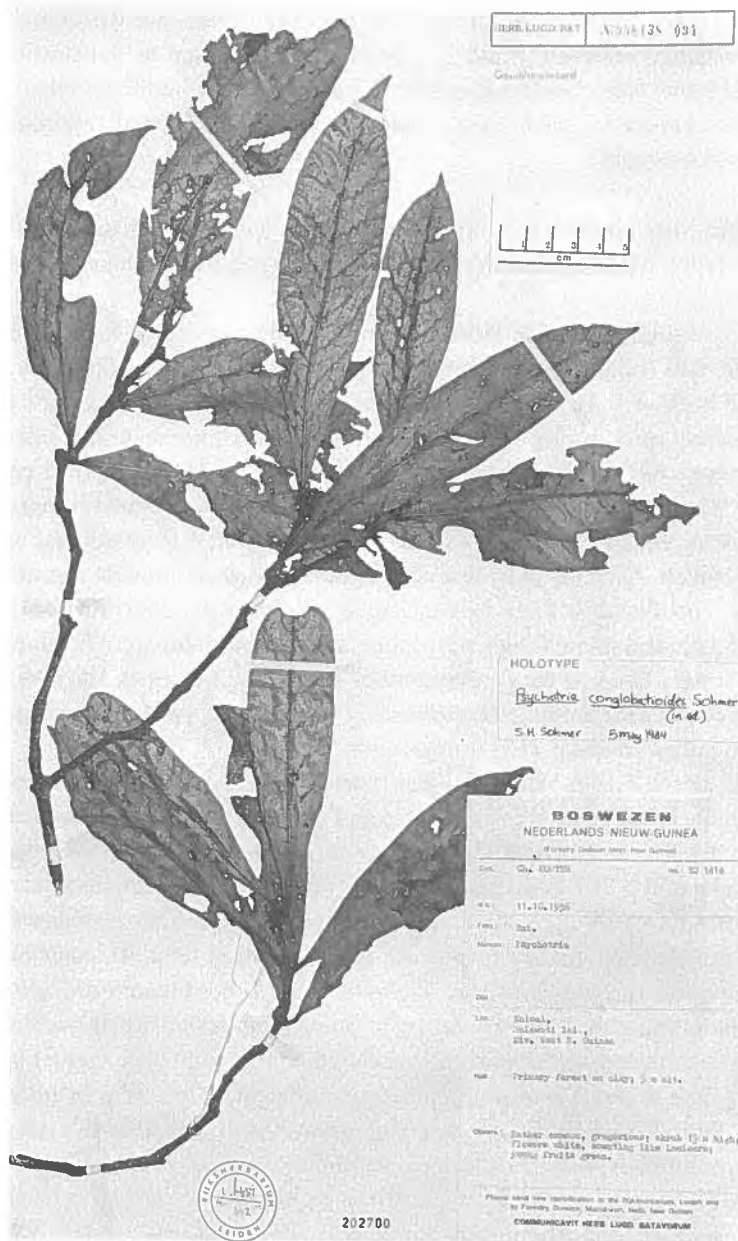


Fig. 21. *Psychotria conglobatioides*. Koster BW 1414 (L, holotype).

Remarks. This species is known only from the type specimen. It will be possible to evaluate its relationships when more collections are available. The lack of rumination in the endosperm indicates that the species may be artificially placed here.

Psychotria crassipedunculata Sohmer, sp. nov. Fig. 22.—Type: *Henty & Frodin* NGF 27305 (LAE, holotype; L, isotype), PNG: WEST NEW BRITAIN PROV: Wariai Dist: upper Pulei Riv nr Benim Vill, in advanced regrowth rain forest at 100 m, 22 Mar 1966.

Arbores 3–6 m altae sunt, stipulis usque ad 4 cm longis calyptratis longis angustis et foliis et inflorescentia per sinum lateralem emergentibus; petiolis 1–2.8 cm longis crassis, laminis $9 \times 25\text{--}15 \times 36$ cm chartaceis oblanceolatis varie ellipticis basi acuto-attenuata apice obtuso-acuta vel breve acuminata nervis lateralibus 16–22 in dimidio quoque infra sursum costam et nervos laterales interdum pubescentibus, inflorescentia plerumque cum axi principali valido crassiori usque ad 6.5 cm longo et cum glomerulo, apici grandi unico florum vel cum 3 axis simulantibus, floribus ultra 10 in glomerulo, eis maturis incognitis. Fructibus 12–13 mm longis obovoideo-globosis sine disco apicali, pyrenis in dorso cum liris irregularibus endospermo ruminato.

Trees 3–6 m. Stipules calyptrate, long, narrow, to 4 cm, young leaves and inflorescences emerging laterally. Leaves with stout petioles 1–2.8 cm; blades chartaceous, broadly oblanceolate to elliptic, $9 \times 25\text{--}15 \times 36$ cm, lateral veins 16–22 per side, sometimes pubescent below along costa and lateral veins, apex blunt-acute or short-acuminate, base acute-attenuate. Inflorescence usually with 1 very stout and sturdy main axis to 6.5 cm long, either a single, massive glomerule of flowers terminating the axis, or 3 or more branches, each of them terminated by massive glomerules, the flowers more than 10 flowers in each fused cluster. Mature flowers unknown. Fruit red at maturity, obovoid-globose, 12–13 mm long not including the prominent disc persistent at the apex. Pyrenes with irregular ribs and ribbing on back, endosperm ruminant.

Other Specimens Examined. PNG. Mo: *Conn & Katik* LAE 66127 (K, L, LAE). WNB: Kandrian S.P.: ridge nr Akinum, *Gillison* NGF 22448 (L, LAE); W of mouth of Pulie Riv, *Henty* NGF 27199 (L, LAE).

Distribution. Lowland rain forests to 100 m in the Bismarck Archipelago and the adjacent area of the New Guinea mainland.

Distinguishing Features. Leaf blades large, over 25 cm long; inflores-

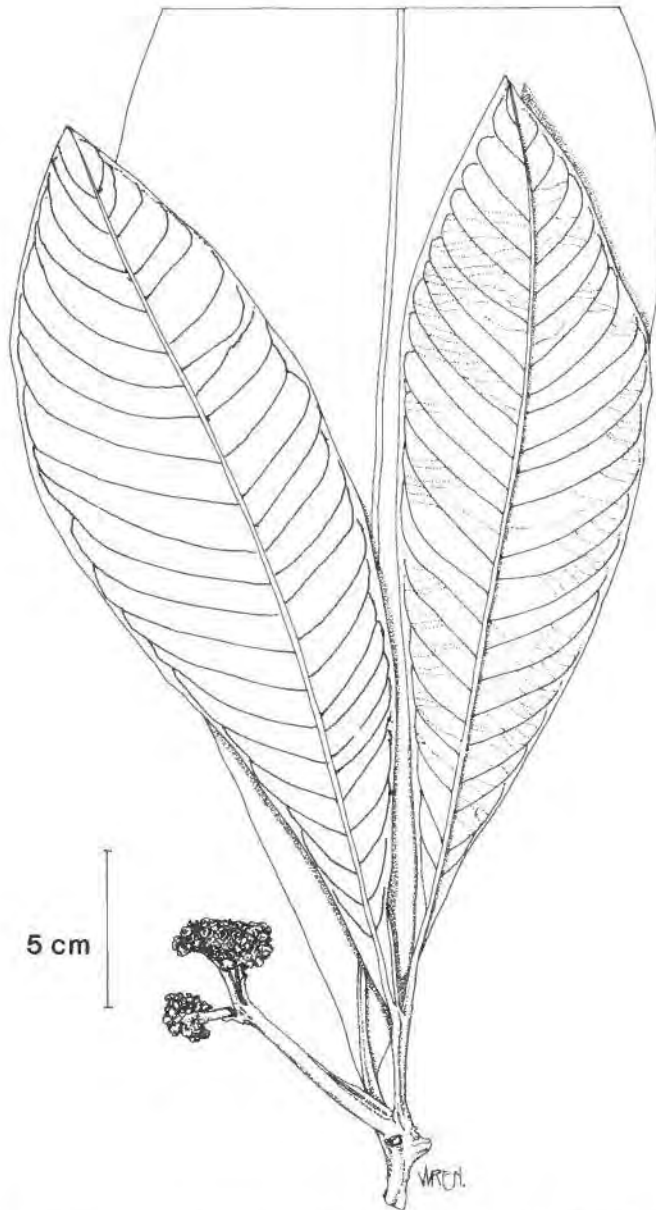


Fig. 22. *Psychotria crassipedunculata*. Henty & Frodin NGF 27305 (LAE, holotype): habit.

cence with 1 very stout main axis; flowers aggregated 10 or more in 1 or more large glomerules or heads.

Remarks. This species is distinct from other Papuanian *Psychotria*, except *P. multipedunculata*, by its stout peduncle and aggregates of flowers. It is separable from *P. multipedunculata* by having more than 10 flowers per glomerule.

Psychotria crassiramula Sohmer, sp. nov. Fig. 23.—Type: *Sohmer et al.* LAE 75446 (LAE, holotype), PNG: EASTERN HIGHLANDS PROV: Lufa Dist: western slopes of Mt Michael, montane forest at 3,200 m, 13 Jun 1979.

Frutices vel arbores parvae 0.5–2 m alti sunt, caule crasso carnosoque, stipulis valvatis usque ad 3.5 cm longis membranaceis vel subcarnosis albis in vivo late obovatis lobis acutis cum pilis subrubri-badiis saepe dense velatis, petiolis 1–4 cm longis laminis oblanceolatis varie elliptico-ovatis crasse coriaceis eis majoribus 3.5×10.5 – 7×20 cm in basi acuminatis ad attenuatis in apice acutis vel breve acuminatis infra villosis nervis lateralibus 12–15(–17) in dimidio quoque, inflorescentia forti axi principali solitario usque ad 6 cm longa parte $\frac{1}{4}$ – $\frac{1}{2}$ eramosa vel in basi ramosa ramulis in 2–4 nodis primariis oppositis axis saepe villosis, floribus 5-meris dimorphicis(?), pedicellis brevibus, hypanthio 1 mm longo calycibus 1–1.5 mm longis tubo dilatato patelliformibus lobis 0.5–1 mm longis acutis, corollis albis subtilibus intra glabris tubo 10–14 mm longo inflato in fauce 3–4 mm diametro lobis 4–5 mm longis ovatis in flore reflexis, antheris 1 mm longis floribus thrumaceis exsertis, stigmatibus inclusis. Fructibus ad 8 mm longis ellipsoideo-globosis albis cum tubo calycis coronatis, pyrenis in dorse angulosis sed sine costis vel liris, endospermo ruminato.

Shrubs or small trees 0.5–2 m high; stems thick and fleshy. Stipules valvate, whitish (in vivo), membranaceous to somewhat fleshy, broadly obovate, to 3.5 cm long, covered with reddish brown hairs, often densely so, apex deeply cleft, lobes acute. Leaves with petioles 1–4 cm; blades thickly coriaceous, rugose, oblanceolate to elliptic-ovate, the major ones 3.5×10.5 – 7×20 cm, lateral veins 12–15(–17) per side, hairy below, apex acute to short-acuminate, base acuminate to attenuate. Inflorescence sturdy, main axis unbranched $\frac{1}{4}$ – $\frac{1}{2}$ its length from base, or branched at base, never more than 6 cm long, branching opposite at the 2–4 primary nodes, the axes frequently hairy. Flowers 5-merous, dimorphic(?) on short pedicels; hypanthium about 1 mm long; calyx tube dilated, saucer-shaped, 1–1.5 mm long, lobes acute, 0.5–1 mm long; corolla white, thin in texture, tube inflated to as much as 3–4 mm wide at summit, and 10–14 mm long, no hair within, lobes ovate, 4–5 mm long, reflexed at anthesis; anthers about 1 mm long, exserted in

BULLETIN 1: BOTANY

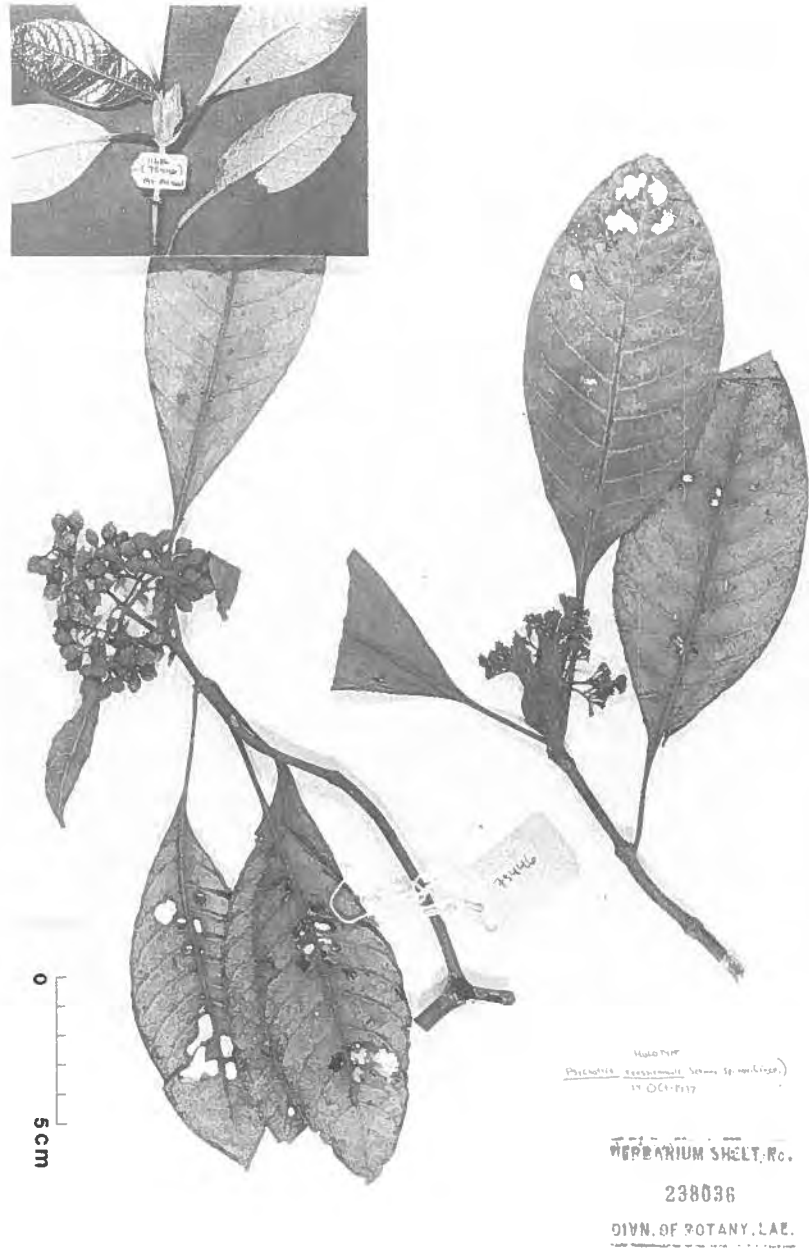


Fig. 23. *Psychotria crassiramula*. Sohmer et al. LAE 75446 (LAE, holotype).

thrum flowers; pistil with stigmas included. Fruit white at maturity, ellipsoid-globose, to 8 mm long, capped by persistent calyx tube. Pyrenes angular at back but without prominent ribs or ridges, endosperm ruminant.

Other Specimens Examined. PNG. E: nr Wabag, *Flenley* ANU 2262 (CANB, L, LAE). C: Minj S.P.: Warapuri Riv, *van Royen* NGF 18197 (LAE). WH: Baiyer S.P.: ridge btwn Baiyer & Jimi valleys, *Sohmer et al.* 75513 (LAE). EH: Asaro S.P.: Daulo Pass, *Womersley* NGF 9056 (LAE); Kainantu S.P.: nr Obura, *Hays* 159 (LAE); Kassam Pass, *Henty & Vandenberg* NGF 29316 (L, LAE); Omaura, *Henty* NGF 27173 (L, LAE); nr Nemuku Vill, *Sayers* 182 (BO, L, LAE, SING); Noreikora Val, *Wheeler* ANU 5961 (CANB).

Distribution. Principally in montane forests at over 2,500 m.

Distinguishing Features. Stems, in vivo, thick and fleshy; stipules, in vivo, white, membranaceous to somewhat fleshy, broadly ovate, cleft and often pubescent; leaf blades coriaceous and rugose, usually over 10 cm long; inflorescence with 1 main axis; fruit white; endosperm ruminant.

Psychotria croftiana Sohmer, sp. nov. Fig. 24.—Type: *Croft & Lelean* LAE 68550 (LAE, holotype; BISH, L, isotypes), PNG: MOROBE PROV: Lae Dist: Natter Bay logging area on a steep gradient in an *Anisoptera* forest at 100 m, 30 Jul 1976.

Arbor glabra 2–3 m alta est, stipulis plerumque coriaceis rigidisque late obovatis usque ad 1 cm longis dorso glabro apice non fisso, petiolis 2–4 cm longis crassis laminis $9 \times 22-10.5 \times 22.5$ cm crasse coriaceis oblongo-ellipticis glabris lucidis basi obtusa apice obtuso varie acuto nervis lateralibus 14–17 in dimidio quoque, inflorescentia 19–25 cm longa quam folia breviori vel aequanti axi principali solitario robusto per partem $\frac{1}{3}-\frac{1}{2}$ basalem eramoso nodis primariis 4–6 eis verticillate ramosis, ramulis in cymulis divergentibus terminantibus, floribus incognitis, fructibus 7 mm longis valde turbinatis licet rubris, pyrenis in dorso sine liris sed parte $\frac{1}{4}-\frac{1}{3}$ caudata, endospermo licet eruminato.

Small tree 2–3 m tall, glabrous. Stipules valvate, usually coriaceous and stiff, smooth, broadly obovate, to 1 cm long, no cilia on margins or hairs on back, apex not cleft. Leaves with stout petioles 2–4 cm long; blades thick coriaceous, glabrous, glossy, oblong-elliptic, $(8 \times 16)9 \times 22-10.5 \times 25.5$ cm, lateral veins 14–17 per side, apex obtuse to acute, base obtuse. Inflorescence (15–)19–25 cm long, shorter than or equaling the subtending leaves, 1 robust main axis that is

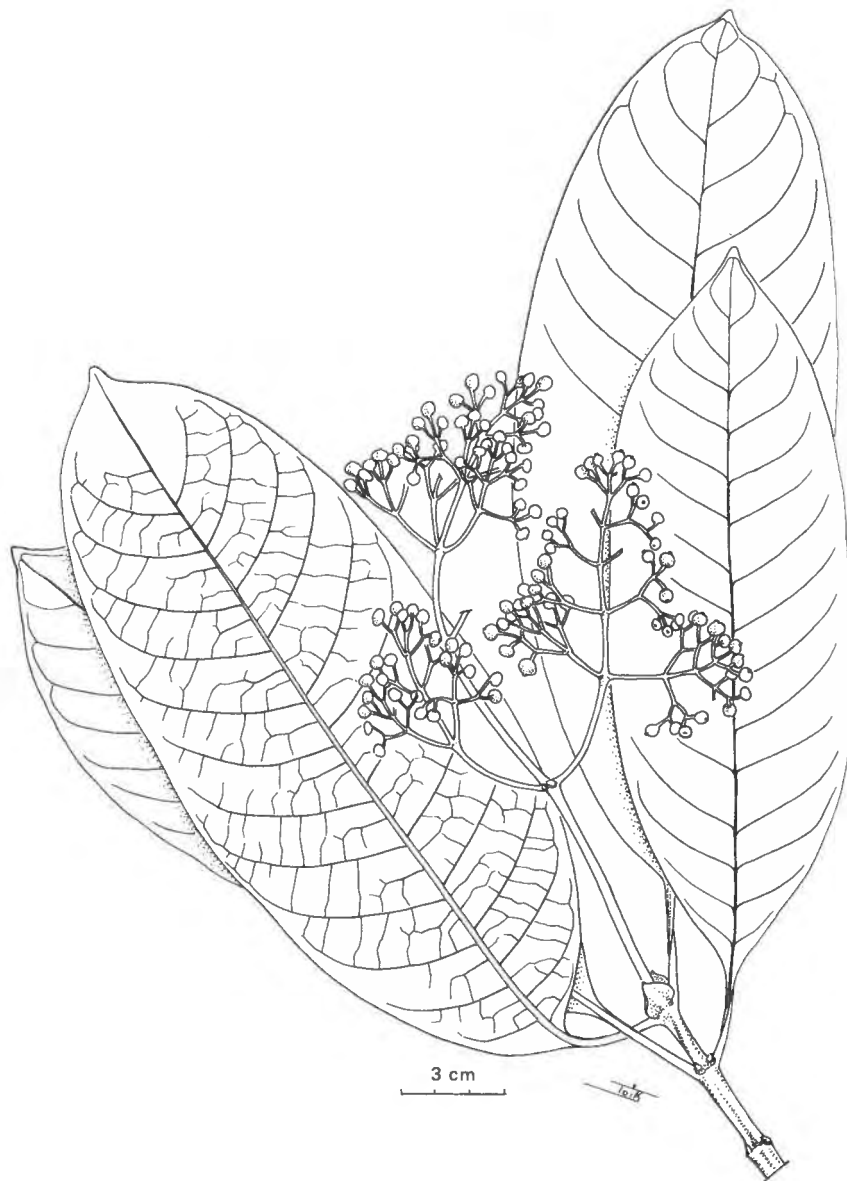


Fig. 24. *Psychotria croftiana*. Croft & Lelean LAE 68550 (LAE, holotype): habit of fruiting branch.

unbranched $\frac{1}{3}$ – $\frac{1}{2}$ its length from base, 4–6 primary nodes, verticillate branching at each, the ultimate branches terminating in spreading cymules. Flowers unknown. Fruit color at maturity unknown, probably red, strongly turbinate, about 7 mm long. Pyrenes without ridges on back but with a tail about $\frac{1}{4}$ – $\frac{1}{3}$ total length, endosperm apparently not ruminant.

Other Specimens Examined. PNG. Mo: Lae S.P.: nr Lae, Jacobs 9636 (L, LAE); Lasanga I, Streimann NGF 44189 (BFC, K, L, LAE).

Distribution. A locally occurring species with an apparently limited distribution in primary lowland rain forests at elevations of 100 m or lower.

Distinguishing Features. Leaf blades large, leathery, smooth and glossy, and oblong-elliptic; inflorescence shorter than or equaling the subtending leaves; pyrenes with short taillike appendages at 1 end.

Remarks. The large, leathery, glossy leaves of this species along with the robust inflorescence, turbinate fruit, and pyrenes with tails, distinguish it from other species of *Psychotria* in Papuaia. Fruiting specimens have been collected in November. The species is named after one of the collectors, James Croft, who was also a colleague of mine during the time I was with the Office of Forests, Division of Botany in Lae.

Psychotria cupulata Valetton, in Lorentz, Nova Guinea 8: 487 (1911). Fig. 25.—
Type: Versteeg 1653 (K, lectotype, here designated; BO, L, isolectotypes),
IRIAN JAYA: "Noord Fluss Resi-Rucken."

Monocaulous shrub to 1 m tall. Stipules valvate, coriaceous, ovate, to about 1 cm long, apices acute to long acuminate, often cleft. Leaves with petioles 1.5–3 cm long; blades coriaceous, glabrous, narrow-elliptic to elliptic-oblongate, 4.2×17 – 17.4×26 cm, primary lateral veins 14–17 per side, apex acuminate, base acuminate and decurrent down petioles. Inflorescence 17–25 cm long, long-peduncled, 1st node appearing $\frac{1}{5}$ of the length of main axis from base, verticillate branching at each of the 3–4 nodes, conspicuous, broad, marginally ciliate bracts subtending all branches of inflorescence including the ultimate sessile or subsessile glomerules and cymules. Flowers 4-merous, dimorphic(?), sessile or subsessile, bracteate, in groups of 3 or more, the cuplike bracts nearly obscuring them; calyx tube and hypanthium 1–1.5 mm, lobes about 1 mm; corolla white, tube glabrous without and villous at the throat. Fruit red, 5–6 mm long and wide,



Fig. 25. *Psychotria cupulata*. Versteeg 1653 (K, lectotype).

often hidden by the persistent bracts. Pyrenes with 3–5 ridges on back becoming obsolete towards apex, the seed conforming to the pyrene, endosperm not ruminate.

Other Specimens Examined. IJ. Without further data, *Pulle* 206 (L), 286 (BO), *von Römer* 917 (BO).

Distribution. Known only from the southwestern part of New Guinea at low elevations.

Distinguishing Features. Monocaulous habit; leaf blades to 26.5 cm long, with about 15 conspicuous lateral veins per side; inflorescence with prominent, persistent, broadly ovate to nearly orbicular bracts, conspicuous venation, to 3 mm high and 7 mm broad, subtending all branches.

Remarks. The label on the Kew Versteeg sheet states the following: "leg. von Römer (Versteeg?) no. 824 (Versteeg 1653?)." The annotation is by Valeton. This specimen, therefore, represents material either from von Römer 824 or Versteeg 1653; both collections were cited by Valeton in his treatment of the species, and either could serve as lectotype. The Leiden specimen also has the same sort of annotation ["No. 1653 (=824 Römer)"]. According to Valeton, the type collection was made at 500 m and was a 1 m tall treelet with yellowish green flowers and black stem.

If the bracts are indicative of a common phylogeny, then this taxon is very closely related to *P. bracteosa*, from which it can be distinguished by its long, elliptic-lanceolate leaves and monocaulous habit. The latter characteristics are similar to those of *P. reflexapedunculata*, sp. nov.

Psychotria damasiana Sohmer, sp. nov. Fig. 26.—Type: *Sohmer et al.* LAE 75351 (LAE, holotype; BISH, BM, BO, isotypes), PNG: WEST NEW BRITAIN PROV: Hoskins Dist: track from coast to Mt Mululus base, in secondary lowland rain forest at ca. 150 m, 20 May 1979.

Arbores 3–9 m altae sunt, ramulis juvenalibus glabris saepe aurantiacupraceis, stipulis usque ad 3 cm longis angustis spicatis in vivo saepe aurantiacupraceis, foliis inflorescentiaque per fissuram lateralem longitudinalem exsertis, tum stipulis caducis sed parte basali parva persistenti, foliis plerumque aurantiacupraceo-tinctis, petiolis 1.3–6 cm longis, laminis 6 × 11–13.5 × 28 cm membranaceis late obovato-ellipticis basi acuta varie obtusa apice acuto varie breve

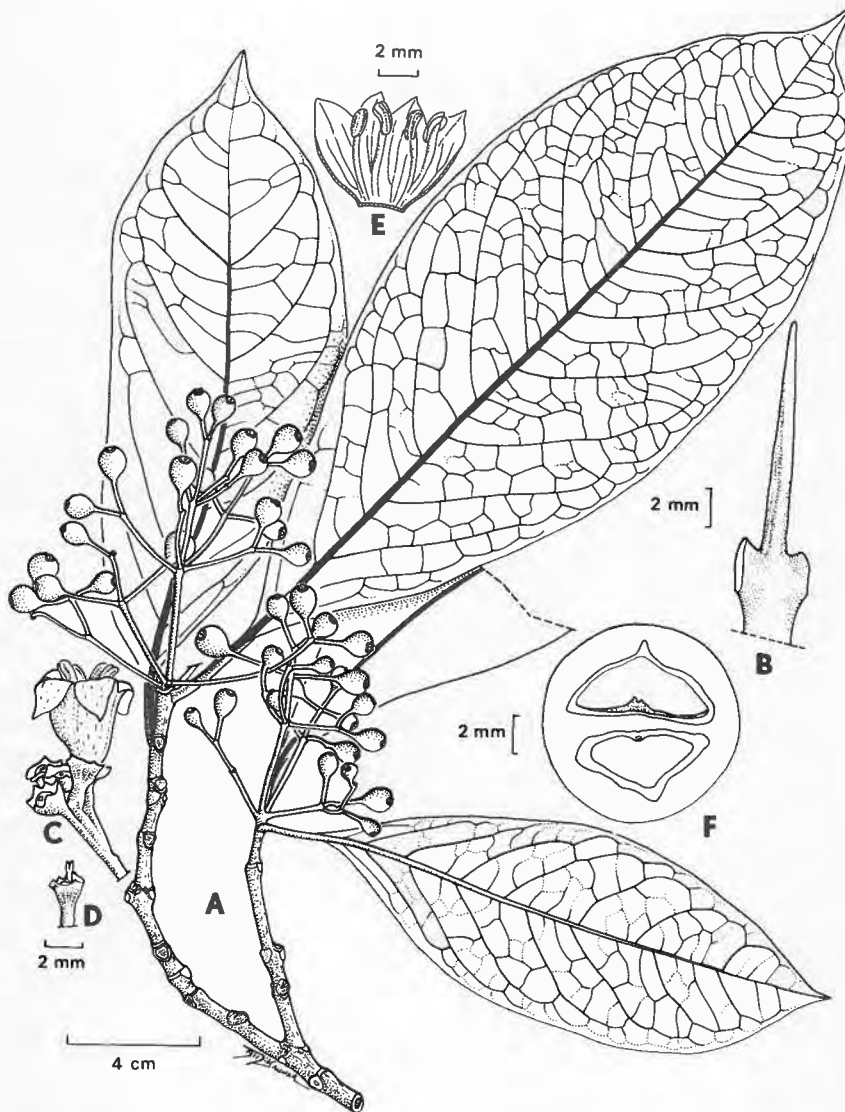


Fig. 26. *Psychotria damasiana*. Sohmer et al. LAE 75351 (LAE, holotype): A, habit of fruiting branch; B, branch apex with stipule; C, flowering branch with several flowers, 3 of which have shed their corollas; D, pin flower with corolla removed; E, corolla of pin flower split and opened; F, fruit x.s.

acuminato nervis lateralibus (5-)8-11 in dimidio quoque, inflorescentia sessili in basi ramosa nodis 2-3, ramulis subtilibus paulum reflexis in apice cum floribus congregatis aurantico-cupraceis sed tarde albescentibus, floribus 4-meris (5-meris?) dimorphicis sessilibus in pedicellis brevioribus, hypanthio calycique vix 1 mm excedenti apice subtruncato vel cum lobis minoribus obtusis, corollis aurantiaco-cupraceo-albis subtilibus tubo 4 mm longo depresso in apice paulum expanso intra glabro, lobis 1-2 mm longis late ovato-subulatis in flore reflexis, antheris 1 mm longis in floribus thumaceis exsertis, pistilo incluso, fructibus 1-1.5 cm longis rubris obovoideo-globosis, pyrenis in sectione transverso paulum, triangularibus, endospermo laevibus homogeneis eruminatis.

Trees 3-9 m tall; young twigs often orange-copper when young, glabrous. Stipules calyptrate, often orange-copper in vivo, narrow, spikelike, to 3 cm long, leaves and inflorescence emerging through a lateral, longitudinal slit, the stipules then rapidly falling away leaving a small amount of tissue at base. Leaves usually flushing orange-copper (a recognizable field characteristic), petioles 1.3-6 cm long; blades membranaceous, broadly obovate-elliptic, 6 × 11-13.5 × 28(15 × 34) cm, lateral veins (5-)8-11 per side, apex acute to short, abrupt acuminate, base obtuse to acute. Inflorescence sessile (branched from base of main axis), generally with verticillate branching, 2-3 nodes, the branches thin, somewhat reflexed, terminating in clusters of pale, orange-copper flowers turning whiter towards maturity. Flowers 4-merous (5-merous also?), dimorphic, sessile on very short pedicels; hypanthium and calyx together not much more than 1 mm long, summit nearly flat or with very small, obtuse lobes; corolla orange-copper-white, very thin in texture, tube glabrous within, squat, slightly expanded towards summit, about 4 mm long, lobes broadly ovate-subulate, 1-2 mm long, reflexed at anthesis; anthers about 1 mm long, exserted (thruns); pistil with style and stigmas included. Fruit red at maturity, obovoid-globose, 1-1.5 cm long. Pyrenes somewhat triangular in cross section, endosperm smooth, homogeneous, not ruminant.

Other Specimens Examined. PNG. Mo: Umboi I, *White* NGF 9629 (L, LAE). MB: Rossel I, *Brass* 28242 (K). WNB: Talasea S.P.: Garu Wildlife Management Area, *Sohmer et al.* LAE 75393 (LAE), LAE 75397 (LAE); Mt Penck, *Frodin* NGF 26713 (BO, L, LAE, SING); nr Bulumuri Vill, *Barker & Vinas* LAE 66517 (K, L, LAE); Mt Bagum, *Barker & Vinas* LAE 66662 (LAE); Kilenge, *Ridsdale* NGF 30447 (CANB, LAE); Hoskins S.P.: Nantambu, *Stevens* LAE 58465 (A, BISH, K, L, LAE, PNH); Kapiura Riv, *Sohmer et al.* LAE 75282 (BISH, BO, LAE), LAE 75283 (LAE), LAE 75290 (BISH, BM, BO, LAE); Mt Mululus, *Sohmer et al.* LAE 75362 (BO, LAE); Nuau logging site, *Lelean & Stevens* LAE 51196 (K, L, LAE); nr Lavege Vill, *Kwapena* WLL 1001 (UPNG); Pokili, *Gebo* WLL 1281 (LAE); Nakanai, Galilo Vill, *Floyd* NGF 3516 (BO, CANB, K, L, LAE, PNH,

SING); Kombe S.P.: Willaumez Pen, *Isles et al.* NGF 32277 (K, L, LAE). ENB: Kokopo S.P.: Tavaluai Riv, *Kerenga* LAE 74241 (L, LAE); Rabaul S.P.: Powell Harbour, *Foreman* LAE 52124 (K, L, LAE).

Distribution. In lowland rain forests and alluvial forests from sea level to 240 m (mostly below 100 m); principally in New Britain.

Distinguishing Features. Stipules and young leaves flushing orange-copper; leaf blades membranaceous; inflorescence sessile (branched at base of main axis); corolla tube thin, glabrous within, about 4 mm long; fruit obovoid-globose, 1–1.5 cm long; endosperm smooth, not ruminant.

Remarks. This species has most often been confused with *P. leptothyrsa* Miquel; however, several good characteristics delimit it. *Psychotria damasiana* has pronounced calyptralike stipules; membranaceous, generally large, obovate leaves; and ruminant endosperm. Also, the young leaves and stipules flush orange-copper. The stipules, because they are shed early, are not often seen on herbarium specimens, nor is the orange-copper color. Further study of these species is needed, particularly their relationship to *P. membranifolia* Bartl. ex DC.

Psychotria decorifolia Moore, Proc. Roy. Soc. Queensland 34: 56 (1923). Fig. 27.—Type: *White* 135 (BM, lectotype, here designated, and isoelectotype), PNG: CENTRAL PROV: Sapphire Creek, Jul–Aug 1918.

Shrub 1–2 m tall, glabrous. Stipules valvate, stiff, glabrous, broadly obovate, to 1.8 cm long, apex cleft, each lobe drawn out to a long, aristate point $\frac{2}{3}$ – $\frac{3}{4}$ as long as the body of the stipule itself, margins entire. Leaves sessile or with petioles less than 1 cm long, most not over 0.5 cm long; blades semicoriaceous, glabrous, narrowly elliptic assymetrical, 2.7×10 – 5.5×25 cm, 10–17 obscure lateral veins per side, apex acute to acuminate, base acute or obtuse. Inflorescence slender, lax, 15–25 cm long, the main axis unbranched for about $\frac{1}{2}$ its length, primary nodes 4–6 with verticillate branching at each, the branches not more than 5 cm long and sparsely branched, few-flowered. Flowers 5-merous, dimorphic(?), on small pedicels about 1 mm long; calyx and hypanthium together about 1 mm long, lobes obtuse; corolla white, tube glabrous without, hairy within, about 3 mm long, lobes broadly ovate, about 1 mm, reflexed at anthesis; anthers about 1 mm long in pin flowers; pistil with style about 4–5 mm long at anthesis in pin flowers. Fruit white at maturity, ellipsoid, about 5 mm long. Pyrenes with 3 sharp ridges on back, endosperm not ruminant.

SOHMER: NEW GUINEA AREA PSYCHOTRIA

Psychotria decorifolia n. sp. n. sp. nov.
 Psychotria glabra, ramis compresis, foliis lanceolatis
 subtergatis striatatis, ciliis brevibus, flosculis
 elongatis linearibus longe gradibus amentis apice
 acuta basi ovata leviter stipitata basi obtusa corolla
 transverse ovata sessile perigonio ovato lateribus
 utrumque 10-12, utero perigonio 2, styli masculi
 ovula breviter sessile in segmento 2 in parte basali
 microscopice pubescente; floribus parvis breviter pedicellatis
 in paniclea cymosa utracundiverna talle breviter vel
 tandem sublongiuscule subnatis pubescentibus postea
 glabrae albae ovulae per 2-3 pedicellatis
 parvis, ovulae ovales quam culta ovulae 3-4
 subulata longior; ovula parva ovula glabra in
 anthera ovata all-lanata talle 3 late oblonga obtusa quam
 talle ovula brevioribus; anthera lanata ovula
 ovata; discipulo periantho; ovula glabra reme obtusa
 microscopice pubescente; fructu late ovato ovula
 ovata utraque talle parvis; disco alio talle glabra.
 Sapphirae Creek 135.

Folia 22.5 x 3.4 cm. in vivo grava; petioli lati,
 5 mm long. stipulae 2.2 cm long. tergetatis 1 cm, subulata
 induratae 1.5 cm, albae. Nervii talle ovati nervium
 pedicellatis 2 cm long. ovula, utrumque 2.1 cm.
 nervii periantho 1.4 cm long. nervii primarii primarii
 cymulae ovatae 1.1 cm long. pedicellatis ovula
 ovata talle ovatae quam talle ovula brevior.
 Nervium 2.3 cm, ovula 5 mm long. ovula alio talle
 2.3 mm, talle 2 mm long. ovula 2.2 mm, nervii 1.1 mm
 long. Fructus ovatus, 5 mm long.

The foliages and stipules are the chief characters of this
 distinct species.

Herbarium of Botanic Garden Museum
LECTOTYPE SPECIMEN
Psychotria decorifolia Moore
 S. H. Sohmer 29 March 1983



Flowers white - | Shrub light
 fruit white - | green leaves

QUEENSLAND HERBARIUM,
 BOTANIC GARDENS, BRISBANE.

Type Specimen

Hab Sapphirae Creek
 Papua New Guinea C. T. White
 No. 135 July/Aug. 1918

Psychotria decorifolia n. sp. n.
 Sapphirae Creek

Psychotria decorifolia S. Moore in Bot. D. Ges. Queensland xxxiv, 26

Fig. 27. *Psychotria decorifolia*. White 135 (BM, lectotype).

The specimen designated as lectotype has a penciled annotation "for fruiting specimen see other sheet."

Other Specimens Examined. PNG. Ce: Goragatabu Crk, *Heyligers* 1288 (CANB, LAE); 6 mi [9.7 km] N of Bootless Inlet, *Pullen* 3103 (CANB); Goldie Riv, *Pullen* 3314 (CANB, LAE); Rugulogo Crk, *Pullen* 6621 (CANB, K, L, LAE); W of Mt Lowes, *Schodde* 2629 (CANB, K, L, LAE); Loloki Riv, *Brass* 3585 (A, BM, BO, K, L); nr Kwikila, *Womersley* 43890 (L, LAE).

Distribution. Commonly reported in the National Capital District and vicinity; in lowland forests from sea level to 100 m elevation.

Distinguishing Features. Leaf blades sessile or nearly so, long and narrow-elliptic in shape; stipules cleft at apex with each lobe prolonged into a long aristate tip; pyrenes with at least 3 sharply defined ridges on back; endosperm not ruminate.

Remarks. This species has affinity with *P. karemaensis*, sp. nov., but can be distinguished from the latter by the nearly sessile leaves and the biaristate stipules. The latter characteristic and the long, narrow elliptic leaves, distinguish this species from all others in Papuaia.

Psychotria dieniensis Merrill & Perry, J. Arnold Arbor. 27: 205 (1946). Fig. 28.—

Type: *Brass* 3827 (A, holotype; BO, isotype), PNG: CENTRAL PROV: Dieni: Ononge Rd, on rain forest floor at 500 m, from a "shrub 50–60 cm" high, Apr–May 1933.

Shrubs 0.5–2 m high, usually densely pubescent, particularly on young plant parts. Stipules valvate, ovate-oblong, 1–2 cm long, usually densely pubescent, apex deeply cleft, the lobes acuminate to nearly aristate. Leaves with petioles 0.5–2 cm; blades semicoriaceous to thickly coriaceous, elliptic to narrow-elliptic, 1.5 × 4.5–4.5 × 14.5 cm, lateral veins 8–11 per side, usually densely pubescent below, apex acute to acuminate, base acute to obtuse. Inflorescence somewhat condensed, to 4 cm high, usually smaller, 1 short, stout main axis with 2 primary nodes with opposite branching at each, the branches terminated by tight cymules of flowers, all axes densely pubescent. Flowers 4- or 5-merous, dimorphic, sessile on very short pedicels; hypanthium about 1.5 mm long, pubescent with relatively long hairs; calyx about 2 mm long, lobes narrow, acuminate, about $\frac{3}{4}$ total length; corolla white, not fleshy, tube 5–6 mm long, not expanded much towards summit,

SOHMER: NEW GUINEA AREA PSYCHOTRIA

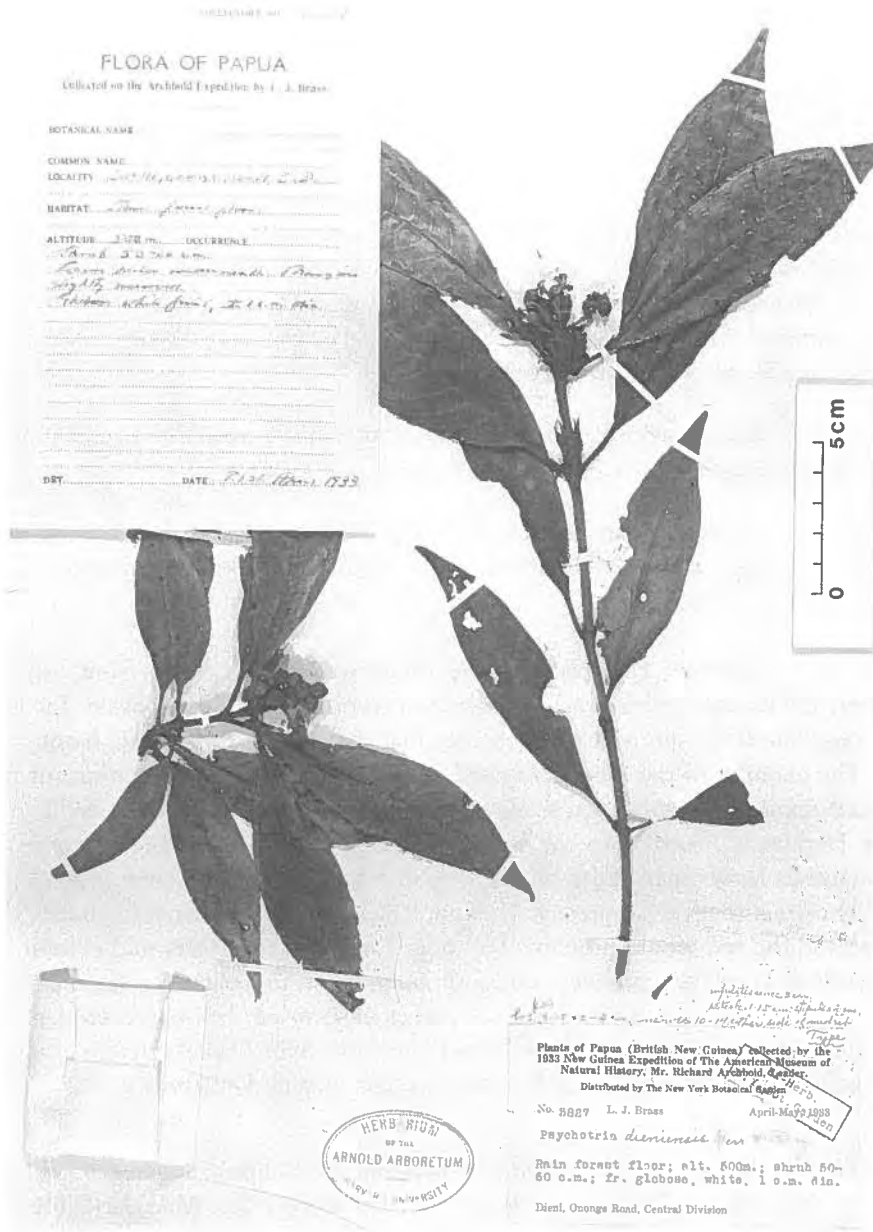


Fig. 28. *Psychotria dieniensis*. Brass 3827 (A, holotype).

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pubescent without, hairy within, lobes ovate-subulate, about as long as tube, pubescent on back, reflexed at anthesis; anthers of thrum flowers about 1.5 mm long, exerted beyond tube; pistil with style and stigmas in thrum flowers included. Fruit white at maturity, ellipsoid-globose, 5–6 mm long, crowned by persistent calyx. Pyrenes with 1–3 irregular ridges on back, endosperm prominently ruminate.

Other Specimens Examined. IJ. Baliem Val above Wellesley, *Kostermans & Soegang 738* (BO, K). PNG. W: Mt Bosari, *Jacobs 8764* (L, LAE). WS: Oksapmin, *Henty et al. NGF 38994* (K, L, LAE), *Howcroft LAE 64024B* (LAE). E: nr Wanepap Mission, *Flenley ANU 2529* (CANB, L, LAE); Kepilam Vill, *Hoogland & Schodde 7249* (CANB, L, LAE). WH: nr Wabag, *Flenley ANU 2371* (CANB). CP: Mt Wilhelm, *Borgman 354* (L).

Distribution. Primary and secondary forests from 500 to 2,500 m in the drainage areas of the Fly and Sepik rivers.

Distinguishing Features. Stipules deeply cleft, the lobes acute-acuminate to nearly aristate; all plant parts pubescent; inflorescence compact; calyx, corolla, and white fruit pubescent.

Remarks. This species is quite similar to *P. trichocarpa* in habit, stipular form, and vestiture but can be distinguished from it by the acute base of the leaf blades. The latter species has leaf blades that have round or truncate bases.

The majority of the specimens cited here is from the higher elevations of the area running north–south across New Guinea from Western Province, over Southern Highlands Province to the Sepiks. These specimens possess thicker, more coriaceous leaves than those on the type and have more prominent veins. I am fairly certain that they represent 1 taxon; I feel that the differences between the type and the rest would probably be bridged by specimens from mid elevations. Merrill & Perry (op. cit.) were under the impression that their species is closely related to *P. multicostoides*, but the number of veins per leaf blade and lack of deeply cleft stipules fairly well precludes that relationship. I believe that *Psychotria dieniensis* is closely related to *P. dolichosepala* Merrill & Perry.

Psychotria diplococca Lauterbach & Schumann, Fl. Deutsch. Schützgeb. Südsee, p. 583 (1901).—Type: *Lauterbach 1141* (not seen), PNG: MADANG PROV: Gogol Riv.

Small trees or shrubs 2–7 m high, glabrous throughout. Stipules valvate, fused halfway from base, persisting on the nodes, each one ovate-triangular in

outline, to 1 cm long, apex blunt or obtuse (not cleft), the margin (in vivo) membranaceous, base conspicuously thickened and triangular. Leaves with petioles 1-8 cm, prominently flattened laterally; blades coriaceous, symmetrical oblanceolate or obovate, $4.5 \times 18-13.5 \times 28.5$ cm, lateral veins 15-17 per side, apex abruptly acuminate, base acuminate-attenuate, not drying a distinctive reddish or yellowish brown. Inflorescence with 1 main axis to 10 cm long, unbranched for a distance beyond the base, 2-5 primary nodes with opposite branching at each, the branches themselves branched, the ultimate branches with clusters of cymules. Flowers 5-merous, dimorphic, sessile; calyx and hypanthium together less than 1.5 mm long, apex generally truncate; corolla white, leathery in texture, the tube about 3 mm long, copious, long hairs at throat, the lobes ovate-obtuse, 1-1.8 mm long; anthers basifixed and 1 mm long; pistil with stigmas 0.4 mm long. Fruit red when ripe, obovoid-turbinate, flattened in 1 plane, 7-10 mm long, 8-14 mm wide. Pyrenes smooth but with a very prominent tail, endosperm ruminant.

Remarks. This is a distinctive species, especially when in fruit. The shape of the bright red, succulent fruit is indicative as is the tapering tail-like appendage of the pyrenes. Although I have not seen the type for this species, I am certain that the cited specimens represent the taxon described by Lauterbach & Schumann (op. cit.). It is found in lowland rain forests in Madang, Morobe, and the 2 New Britain provinces, as well as Gulf Province. This species is probably more widespread than the number of collection sites reveals.

Valeton (1927) recognized a variety, *mailanderi*, with leaves smaller than those of the nominal variety. The new variety recognized here is separated from the other varieties by the smaller fruit as well as by smaller leaves. The varieties can be separated by the following key:

1. Leaf blades more than 25 cm long var. *diplococca*
 Leaf blades less than 25 cm long 2
2. Fruit usually more than 10 mm long var. *mailanderi*
 Fruit usually less than 5 mm long var. *tauriensis*

Psychotria diplococca var. *diplococca*

Trees 5 m tall. Leaves with petioles to 8 cm long; blades $13 \times 26-13.5 \times 28.5$ cm, apex generally round but with a short-acuminate point. Flowers unknown at present. Fruit globose-obovoid (drying somewhat bilobed), 7-8 mm long, and as wide.

Other Specimens Examined. PNG. M: Gogol Riv, *Sohmer & Katik* LAE 75191 (LAE).

Distinguishing Features. Blades large, over 26 cm.

Remarks. This taxon is probably that described by Lauterbach & Schumann (op. cit.), although the collection cited above has several characters that do not match the description, such as the length of the inflorescence, the length of the peduncle (unbranched main axis of inflorescence), and the lack of pubescence on the inflorescence axes. Aside from these, the locality, persistent stipules, leaf blade shape and size, and the strongly flattened nature of the petioles fit very well as does the basically diplococcus nature of the fruit. It is surprising that it has been collected only once since the time of the type collection.

Psychotria diplococca var. *mailanderi* Valetton, Bot. Jahrb. 61: 69 (1927). Fig. 29.—Type: *Sohmer et al.* LAE 75287 (LAE, neotype; BISH, BO, isoneotypes), PNG: WEST NEW BRITAIN PROV: Hoskins Dist: left bank of Kapiura Riv ca. 1 km S of Aum Riv, in lowland, alluvial rain forest at ca. 20 m, 16 May 1979.

Small trees 2–7 m high. Leaves with petioles 1–5.5 cm long; blades 4.5 × 18–7.5 × 25 cm. Fruit obovoid-turbinate, 10 mm long, 13–14 mm wide.

A neotype has been selected; Valetton (1927) did not provide his taxon with a formal description or specimen citations. After presenting the taxon in his key, he neglected to treat it in the text.

Other Specimens Examined. PNG. Mo: Butibum Riv, *Hartley TGH* 9812 (A, CANB, L, LAE), 10833 (CANB, K, L, LAE); Bumbu logging area, *Henty NGF* 13672 (LAE), *NGF* 14856 (BO, CANB, K, L, LAE); Sankwep Riv, *Katik* LAE 74737 (L); Yalu, *Womersley NGF* 3370 (K, L, LAE); nr Igam Rd, *Croat* 52819 (LAE); Busu Hills, *Floyd NGF* 5623 (BO, CANB, K, L, LAE, PNH, SING). WNB: Talasea S.P.: Sibaute Crk, *White NGF* 10833 (LAE); Hoskins S.P.: Galilo Vill, *Floyd NGF* 6434 (BO, CANB, K, L, LAE); Sarakolok, *Millar NGF* 40559 (BO, K, L, LAE, SING); Kapiura Riv, *Henty NGF* 29388 (BISH, BO, K, L, LAE, PNH), *Sohmer et al.* LAE 75269 (BISH, BO, L, LAE, W), LAE 75285 (BISH, BO, LAE), LAE 75312 (BISH, BM, BO, LAE); nr Tabai Rikau, *Coode & Lake NGF* 32628 (A, BISH, BO, K, L, LAE, SING). ENB: Keravat, *Floyd NGF* 6663 (BO, CANB, K, L, LAE, SING), *Hoogland NGF* 3437 (CANB, L, LAE), *Streimann NGF* 44357 (BFC, LAE); Warangsi Val, *Kazakoff NGF* 7065 (BO, CANB, K, L,

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Fig. 29. *Psychotria diplococca* var. *mailanderi*. *Sohmer et al.* LAE 75287 (LAE, neotype).

LAE); Trans Vudal, *Streimann* NGF 44394 (BFC, BO, K, L, LAE). NI: Taro, *Sands et al.* SAND 2117 (L).

Distribution. Lowland rain forests from sea level to about 70 m in New Britain and the Lae District of Morobe Province.

Distinguishing Features. Leaf blades oblanceolate, 18–25 cm long.

Remarks. This variety was essentially described by Valetton (1927) in his key. He apparently forgot to treat it in the body of the text. I consider it validly published. I have selected as neotype a specimen that conforms very closely to the description.

Psychotria diplococca var. *tauriensis* Sohmer, var. nov. Fig. 30.—Type: *Schodde & Craven 4629* (LAE, holotype; L, isotype), PNG: GULF PROV: Malalaua Dist: junction of Kapau and Tauri rivers at ca. 200 m, 8 Mar 1966.

Frutices 1.5–4 m alti sunt, stipulis valvatis 0.6–1 cm longis ovato-oblongis glabris apice rotundato vel obtuso non fisso in nodis persistentibus, petiolis 2–4 cm longis laminis $5 \times 19.5\text{--}6.7 \times 24.5$ cm chartaceis vel subtiliter coriaceis globoso-ellipticisve basi acuminato-attenuata apice anguste acuminato nervis lateralibus 19–21 in dimidio quoque, inflorescentia usque ad 10 cm longa axi principali usque ad 1.5–2 cm longo nodis primariis 3–4 cum ramis oppositis eis duplo furcatis et in cymulis terminantibus, floribus 5-meris dimorphicis(?), pedicellis brevibus, calyce et hypanthio minus que 0.5 mm longis, corollis albis vel subviridi-albis subtilibus tubo 1–1.5 mm longo ad apicem paulum distento intra glabro, lobis 1 mm longis ovatis, in floribus thrumaceis 0.8 mm longis, fructibus 4–5 mm longis rubris turbinato-obovoideis bilobatis ad pedunculo crasso decrescentibus, pyrenis laevibus ad apicem decrescenti, endospermo ruminato.

Shrubs 1.5–4 m high. Stipules valvate, persistent on the nodes, glabrous, ovate-oblong, 0.6–1 cm long, apex round or obtuse, not cleft. Leaves with petioles 2–4 cm long; blades chartaceous to thinly coriaceous, glabrous, elliptic, $5 \times 19.5\text{--}6.7 \times 24.5$ cm, lateral veins 19–21 per side, apex acuminate to very narrow acuminate, base acuminate-attenuate. Inflorescence to 10 cm long, 1 main axis 1.5–2 cm long, 3–4 primary nodes with opposite branching at each, the branches branched $2 \times$ more before terminating in cymules. Flowers 5-merous, dimorphic(?), on short pedicels; calyx and hypanthium together less than 0.5 mm long; corolla white to greenish white, thin in texture, the tube somewhat expanded to summit, glabrous within, 1–1.5 mm long, lobes ovate, about 1 mm long; anthers in thrums about 0.8 mm long. Fruit red when ripe, turbinate-obovoid, definitely bilobed, narrowed to a (relatively) stout stalk, 4–5 mm long. Pyrenes without obvious ribs or ridges on back, narrowed to a foot at one end, endosperm ruminant.

Other Specimens Examined. PNG. G: Baimuru S.P.: Vailala Riv, *Croft LAE 61250* (LAE); Kerenga S.P., *Schodde & Craven 4441* (L, LAE).

SOHMER: NEW GUINEA AREA PSYCHOTRIA

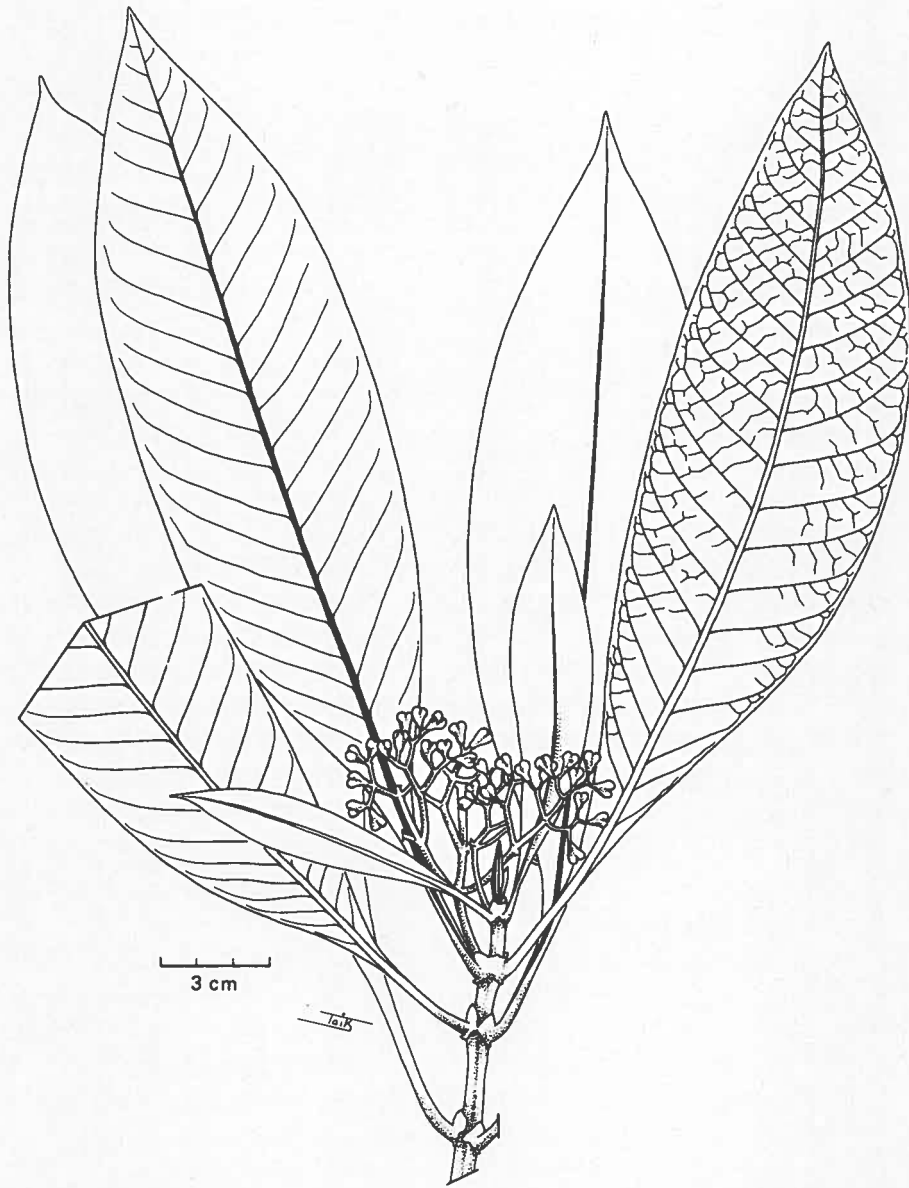


Fig. 30. *Psychotria diplococca* var. *tauriensis*. Schodde & Craven 4629 (LAE, holotype): habit.

Distribution. Apparently limited to the lowland rain forests of Gulf Province.

Distinguishing Features. Leaf blades narrow-elliptic, 19.5–24.5 cm long, lateral veins 19–21 per side; corolla tube 1–1.5 mm long; fruit turbinate-obovoid, 4–5 mm long; pyrenes with a tail-like appendage at basal end, endosperm ruminate.

Psychotria dipteropoda Lauterbach & Schumann, Fl. Deutsch. Schützgeb. Südsee, p. 576 (1901). Fig. 31.—Type: *Lauterbach 1056* (WRSL, lectotype, here designated), PNG: MADANG PROV: Gogol Riv, in primary forest, 24 Nov 1890.

Psychotria alata Valetton, Bot. Jahrb. 61: 80 (1927).—Type: *Schlechter 16296* (GH, lectotype, here designated; A, BM, K, L, S, isolectotypes), PNG: “im den Wäldern von Albo,” at ca. 300 m (cited as 3,000 by Valetton), 12 Aug 1907.

Trees or shrubs. Stipules calyptrate, narrow, cylindrical, about 1 cm long. Leaves with petioles about 1 cm long; blades chartaceous, glabrous, elliptic to elliptic-ovate, $2 \times 7\text{--}3.4 \times 9.6$ cm, apex acute, base acute to obtuse. Inflorescence 1 main flattened axis terminated by trichotomous branching, pubescent, flowers sessile or near sessile in the nodes. Fruits presumed red when ripe.

This taxon has apparently not been re-collected since the days of Lauterbach & Schlechter. At least it is not represented at LAE. The collections cited by Lauterbach & Schumann in the published account of their species still exist in WRSL.

Other Specimens Examined. PNG. Without further data, *Lauterbach (20)66* (WRSL); “Am Ramu Fluss,” *Schlechter 13874* (BO, WRSL); “Am Minjem bei Kelel,” *Schlechter 16161* (BM, C, K, L, S).

Remarks. This species is related to *P. leleana*, sp. nov., and *P. leleanoides*, sp. nov., but can be distinguished from both by the long, glabrous, strongly flattened peduncle that is terminated by trichotomous branching and smaller leaves. Although the Lauterbach specimen collected in NE New Guinea has the number “66” on the label, by the date I am fairly certain that it is actually No. 2066. If it is, this WRSL specimen is another syntype. It differs from *P. dipteropodioides*, sp. nov., by its small leaves and glabrous condition.

Valetton (1927), with some doubt, designated the *Schlechter 16296* collection a new species, commenting on its probable relationship to *P. dipteropoda*: “Ob-

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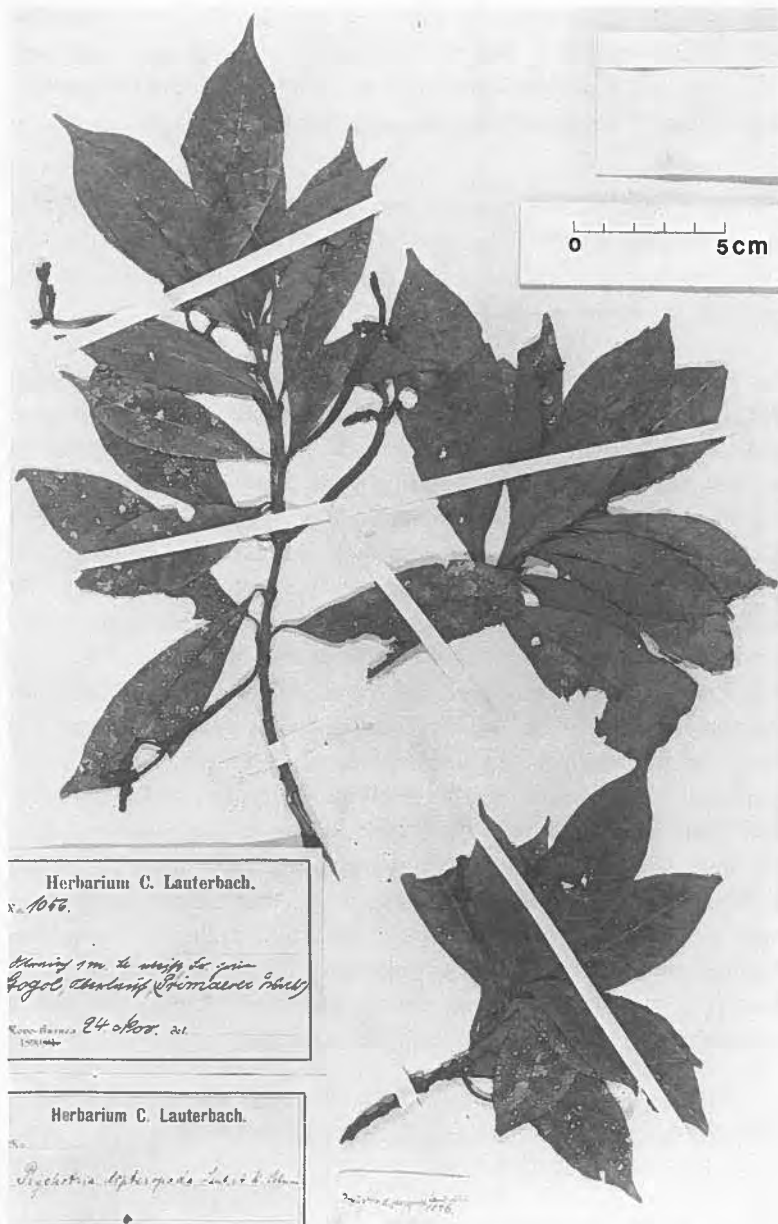


Fig. 31. *Psychotria dipteropoda*. Lauterbach 1056 (WRSL, lectotype).

gleich Blüten und Frucht fehlen ist die Art durch ihre *P. dipteropoda* ähnliche Infloreszenz u.a. so kenntlich, dass ich nicht anstehe, sie mit einem Artnamen zu versehen." After examining specimens from A, GH, and S and comparing them to the material for *P. dipteropoda*, I am combining these 2 taxa.

Psychotria dipteropodioides Sohmer, sp. nov. Fig. 32.—Type: *Hartley* 9930 (LAE, holotype; CANB, L, SING, isotypes), PNG: MOROBE PROV: Lae Dist: nr the Butibum Riv ca. 7 mi [11.3 km] N of Lae, in lowland rain forest along a stream at ca. 60–65 m, 24 Feb 1962.

Arbores 5–7 m altae sunt, novellis pubescentibus stipulis usque ad 2 cm longis anguste cylindricis pubescentibus, foliis juvenalibus et inflorescentia licet per cacumenem emergentibus, petiolis 2–2.5 cm longis pubescentibus laminis chartaceis 4.5 × 14–9.5 × 28 cm ellipticis varie elliptico-lanceolatis basi acuta vel obtusa apice acuminato infra dumtaxat in juventa pubescentibus nervis lateralibus 15–18 in dimidio quoque, inflorescentia cum axi solitario nodis primariis 2–3 omnibus cum jugis ramulis eis et axi cum floribus sessilibus, floribus incognitis, fructibus 11–12 mm longis pedicello crasso brevi incluso rubris, pyrenis in dorso convoluto in apice cum caudici planato, endospermo ruminato.

Trees 5–7 m tall; young plant parts pubescent. Stipules narrow, cylindrical, to 2 cm long, the young leaves and inflorescence probably emerging via the top, not through a lateral longitudinal slit, pubescent. Leaves with petioles 2–2.5 cm long, pubescent; blades chartaceous, elliptic to elliptic-lanceolate, 4.5 × 14–9.5 × 28 cm, lateral veins 15–18 per side, pubescent below at least when young, apex acuminate, base acute to obtuse. Inflorescence with 1 main axis with 2–3 primary nodes each bearing a pair of branches, the branches and top part of the main axis bearing sessile flowers at clearly marked and prominent nodes, all axes pubescent. Flowers unknown. Fruit red when ripe, obovoid, 11–12 mm long, including the stout, short foot or pedicel. Pyrenes with irregular convolutions on back and a short, flat foot or tail at one end, endosperm ruminant.

Other Specimens Examined. PNG. Mo: Lae S.P.: Butibum Riv, *Hartley* 11760 (CANB, L, LAE); nr Sankwep Riv, *Womersley* NGF 43716 (LAE); Busu Riv, *Hartley* 11039 (CANB, L, LAE).

Distribution. Apparently restricted to the vicinity of Lae; lowland alluvial forest below 150 m.

Remarks. The relatively large, symmetrical elliptic or elliptic-lanceolate leaves of this species, along with the pubescent stem tips, stipules, and inflo-

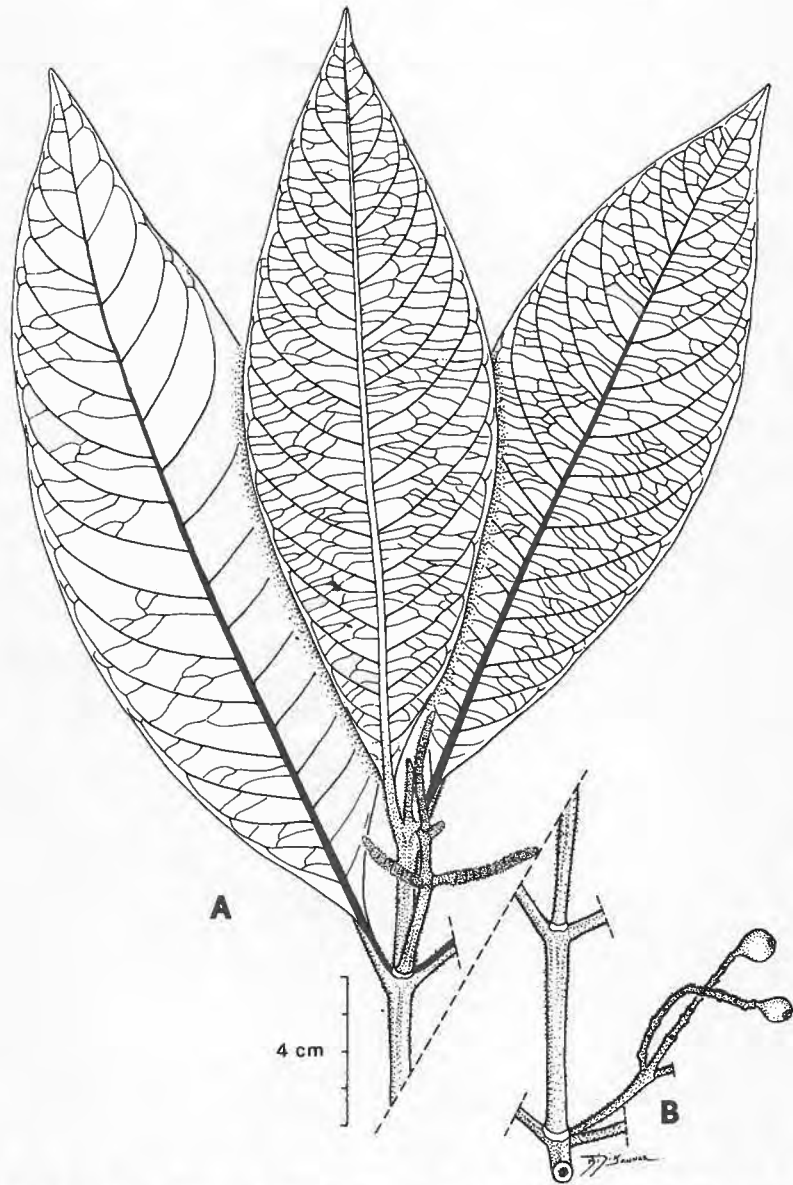


Fig. 32. *Psychotria dipteropodioides*. Hartley 9930 (LAE, holotype): A, habit; B, fruiting inflorescence with fruit.

rescence axes, distinguish it from the related taxa *P. leleana*, sp. nov., *P. leleanoides*, sp. nov., and *P. dipteropoda*.

Psychotria direpta Wernham, J. Bot. (London) 56: 135 (1918). Fig. 33.—Type: H.O. Forbes 49 (K, lectotype, here designated; BM, L, LAE, isoelectotypes), PNG: CENTRAL PROV: Sogeri region, 19 Oct 1885.

Small trees or shrubs to 6 m tall. Stipules valvate, glabrous, broadly obovate, to 1.5 cm long, apex acute, not cleft. Leaves with petioles 1.5–3 cm long; blades glabrous, broadly elliptic-obovate, 9.5 × 19.5–11 × 23 cm, primary veins 13–16 per side. Inflorescence glabrous, 20–25 cm long, as large or larger than subtending leaves, peduncle or unbranched main axis ½ of total length, primary nodes 3–4 with opposite branching at first node, opposite or verticillate branching at higher nodes. Flowers 4- or 5-merous (dimorphic?), glabrous, on short pedicels; calyx and hypanthium together 1.5–2 mm long, calyx lobes obtuse or rounded; corolla tube narrow, 4–4.5 mm long, lobes subulate-lanceolate, about 1.0–1.5 mm long (in thrum flowers). Fruit white at maturity, globose, 2–3 mm long (in dry condition); pyrenes without well-defined ridges on back, endosperm ruminant.

Other Specimens Examined. PNG. Ce: Sogeri, Brass 635 (K). C: NE of Mt Karimui, Hide RLH 546 (UPNG).

Distribution. Probably more widely distributed than is indicated by the 2 specimens now known. The Mt Karimui collection was made at ca. 1,800 m.

Distinguishing Features. Leaf blades large, elliptic-obovate, primary veins 13–16 per side; corolla 4–4.5 mm long (in the thrum flowers); fruit globose, small.

Remarks. This taxon may be allied to *P. womersleyi*, sp. nov., and it may be the same as *P. katikii*, sp. nov., separable from the latter only by the noncleft stipules. If this characteristic is not valid in this case, *P. direpta* and *P. katikii* may be conspecific.

Psychotria dolichantha (Schumann) Valetton, Bot. Jahrb. 61: 84 (1927). Fig. 34. *Grumilea dolichantha* Schumann, Nachträge, Fl. Deutsch. Schützgeb. Südsee, p. 397 (1905).—Type: Nymann 668 (S, lectotype, here designated, and isoelectotype), PNG: MOROBE PROV: "Satelberg."

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Fig. 33. *Psychotria direpta*. Forbes 49 (K, lectotype).

BULLETIN 1: BOTANY

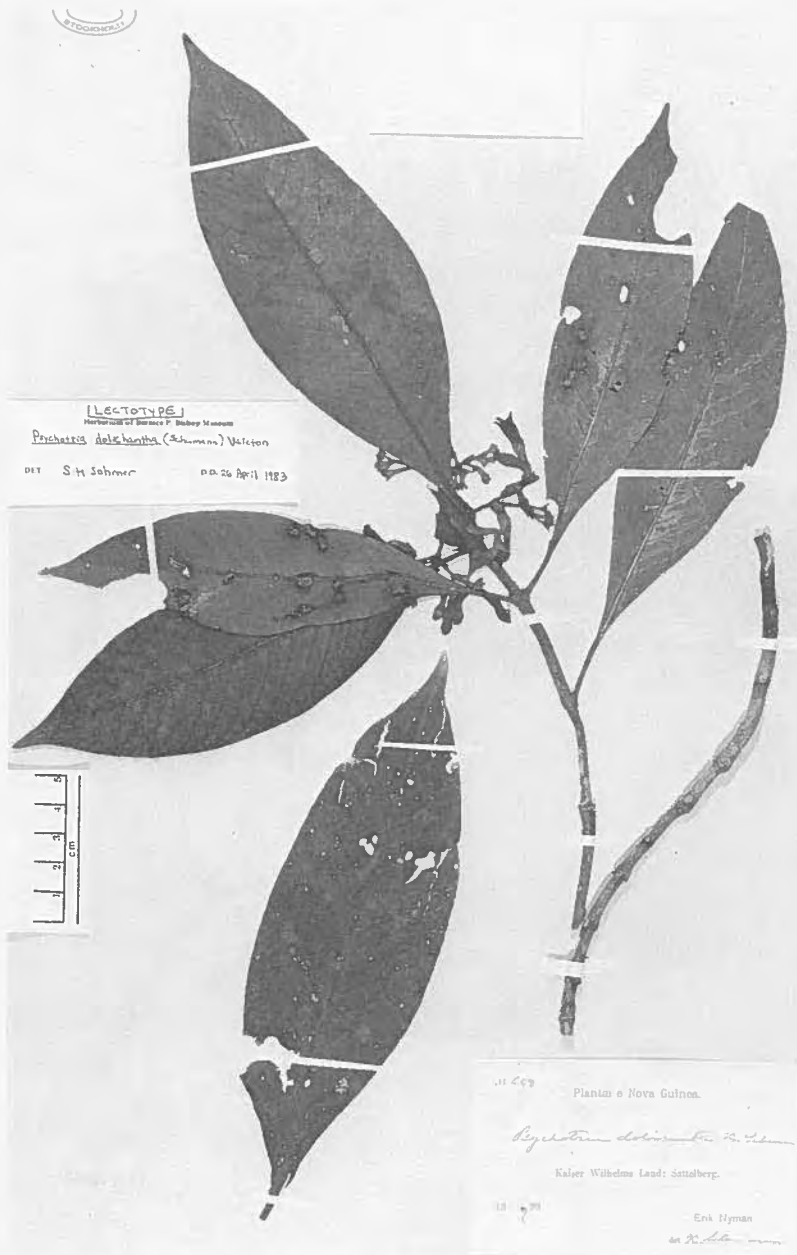


Fig. 34. *Psychotria dolichantha*. Nyman 668 (S, lectotype).

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Shrubs about 1.5 m high. Stipules valvate, thin, pubescent on back or glabrous, obovate-oblong, to 2.5 cm long, apex cleft, the lobes acute. Leaves with petioles 1.5–2.5 cm long; blades coriaceous to stiffly coriaceous, often rugose, elliptic to elliptic-obovate, 3.2×8.5 – 7×19 cm, lateral veins 20–24 per side (on major leaves), the tertiary veins prominent above and below, apex acute to short-acuminate, base attenuate. Inflorescence condensed, no more than 2 cm long in flower, or more spread out to 5–6 cm, appressed in bud by the large stipules and long obovate bracts, axes pubescent or glabrous. Flowers 4- or 5-merous, dimorphic, sessile; hypanthium about 1 mm long; calyx tube about 1.5 mm long, lobes acute, about 1 mm long; corolla white, tube glabrous or puberulent within, narrow, 11–16 mm long, lobes ovate, 3–5 mm long, reflexed at anthesis; anthers 1 mm long, sessile in pin flowers; pistil with style and stigmas exerted. Fruit white at maturity, ellipsoid-obovoid, 8–9 mm long not including persistent calyx. Pyrenes with 2 prominent ridges on back and sulcus between them, endosperm ruminant.

Other Specimens Examined. PNG. EH: nr Goroka, Womersley & Good NGF 9056 (BO). Mo: Lae S.P.: Zatarl, van Royen & Millar NGF 15681 (L, LAE); Sattleberg, Clemens 6533 (A).

Distribution. Mid to high elevation forests in Morobe and Eastern Highlands provinces.

Distinguishing Features. Leaf blades coriaceous to stiffly coriaceous, often rugose, lateral veins 20–24 per side; inflorescence condensed, bracts oblong-obovate; pyrenes with 2 ridges on back.

Remarks. The tendency to a compact inflorescence, with oblong-obovate bracts associated with it, and the rugose, coriaceous to stiffly coriaceous leaf blades with more than 20 lateral veins per side are useful indicators of this species. I had originally segregated the van Royen & Millar NGF 15681 collection as a new taxon because it is glabrous where the type is pubescent and it has a highly condensed inflorescence and stiffly rugose leaves.

Psychotria dolichosepala Merrill & Perry, J. Arnold Arbor. 27: 208 (1946). Fig. 35.—Type: Brass 10871 (A, holotype; BO, BM, L, isotypes), IRIAN JAYA: 9 km NE of Lake Habbema in forest undergrowth in a valley bottom at 2,800 m, from a shrub 1.5 m high, Oct 1938.

Psychotria dolichosepala forma *glabra* Merrill & Perry, J. Arnold Arbor. 27: 208 (1946).—Type: Brass 12096 (A, holotype; BO, L, isotypes), IRIAN JAYA: Idenburg Riv, 15 km



Fig. 35. *Psychotria dolichosepala*. Brass 10871 (A, holotype).

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SW of Bernhard Camp, in "Mossy Forest" from a shrub 1 m high at 1,800 m, Sept 1939.

Shrubs or small trees 1–3 m high. Stipules valvate, membranaceous to chartaceous, obovate to ovate-oblong, to 3 cm long, cleft, the lobes often long-acuminate. Leaves with petioles 0.7–3 cm long; blades coriaceous, elliptic-ovate to broadly elliptic, $2.2 \times 7.4\text{--}6 \times 12.5$ cm, lateral veins prominent, 8–12 per side, opposite, subopposite or alternate along midrib, usually pubescent, apex acute to acuminate, base acute to obtuse. Inflorescence either with main axis unbranched $\frac{1}{2}$ – $\frac{3}{4}$ of length from base and terminating with 3 branches, or branched trichotomously nearly at base, 5–7 cm long, often as wide, 1–3 primary nodes with opposite branching at each, the branches terminating in relatively widely spaced cymes, or clusters of them, the axes usually densely hairy throughout. Flowers 5-merous, dimorphic, hairy, on short, hairy pedicels; hypanthium and calyx tube 2–3 mm long, lobes acute-acuminate, 3–4 mm long, villous throughout; corolla white, relatively thin in texture, tube 5–7 mm long, dilated towards summit, sparsely hairy within, lobes wide-ovate, 2–3 mm long, reflexed at anthesis; anthers 1–1.5 mm long in pin flowers. Fruit white at maturity, ellipsoid-globose, 5–9 mm long not including persistent calyx, covered with long, thin hairs. Pyrenes without prominent ribbing on back, endosperm prominently ruminant.

Other Specimens Examined. PNG. WS: E of Telefomin airstrip, *Johns, Moi et al.* LAE 64681 (BFC). E: Wabag S.P.: NW of Kupalis, *Flenley* ANU 2365 (CANB, L, LAE); Liagam S.P.: Yobobos grassland area, *Hoogland & Schodde* 7529 (BO, L, LAE); Sirunki, *Walker* ANU 699 (CANB), ANU 837 (LAE), ANU 876 (K, L, LAE). WH: Laiagam–Kandep Rd, *Flenley* ANU 2844 (CANB, K, L). C: Kundiawa S.P.: SW of Koge Mission, *Hide* 465 (LAE); Sinasina, *Kerenga* LAE 74481 (LAE); Mt Kerigomma, *Robbins* 787 (CANB, L, LAE). EH: Lufa S.P.: Mt Michael, *Sohmer et al.* LAE 75450 (LAE), LAE 75451 (LAE), LAE 75452 (LAE), LAE 75453 (LAE); Goroka S.P.: Daulo Pass, *Sohmer et al.* LAE 75461 (LAE); Marafunga, *Hartley* 13298 (CANB, LAE), *Millar* NGF 40772 (CANB, L, LAE), *Stevens* LAE 51003 (CANB, L, LAE), *Stone* LAE 53268 (L, LAE). W: Kiunga, *Hyn* 101 (LAE). SH: Mendi S.P.: Mt Giluwe, *Schodde* 2061 (CANB, L, LAE), *Womersley & Leach* LAE 55272 (BISH, BO, K, L, PNH, SING), LAE 55275 (LAE); NE of Iaro Riv, *Croft et al.* LAE 61052 (CANB, L, LAE); Ialibu area, *Womersley & Wooliams* NGF 37034 (K, L, LAE). Ce: Port Moresby S.P.: Astro-labe Range, *Stevens* LAE 50406 (L, LAE).

Distribution. Found throughout the montane forests of the central Highlands massif of New Guinea, from 1,320 to 3,200 m.

Distinguishing Features. Plants densely pubescent or hairy nearly throughout (with infrequent exceptions); stipules deeply cleft at apex, lobes acute-acuminate; calyx lobes 3 mm long, hairy; fruit white and hairy.

Remarks. This taxon bears a resemblance to *P. mur-murensis*, sp. nov. Although Merrill & Perry (1946) recognized a glabrous form, I recognize that glabrous individuals occur but do not consider them as constituting a separate taxon.

Psychotria ectasiphylla Lauterbach & Schumann, Fl. Deutsch. Schützgeb. Südsee, p. 576 (1901). Figs. 36, 37.—Type: *Lauterbach 1165* (WRS�, lectotype, here designated), PNG: MADANG PROV: lower reaches of Gogol Riv, from a 2 m tall shrub with white fruit, 6 Dec 1890.

Small shrubs or reduced, unbranched, suffrutescent plants 0.5–2 m tall. Stipules valvate (but fused to a common tissue below), pinkish purplish and membranaceous in the field, glabrous, or sometimes pubescent when young, ovate, to 1.8 cm long, apex usually cleft. Leaves with petioles 0.5–3 cm long; blades coriaceous, glabrous (occasionally pubescent when young), narrow-elliptic to elliptic-obovate, 2.5×18 – 8×26 cm long, lateral veins 8–10 per side usually ascending steeply at an acute angle from midrib, often purplish below on midribs and veins particularly, both ends usually attenuate. Inflorescence 3–11 cm long, much shorter than the leaves, generally with 1 stout main axis and a single spray of branches at the top or with 2 to rarely as many as 6 primary nodes with verticillate (rarely opposite) branching at each, the branches at the upper nodes much smaller, the inflorescence relatively few-flowered. Flowers 5-merous, dimorphic, glabrous, on short, stout pedicels; hypanthium and calyx together about 3 mm long, apex nearly truncate; corolla white, tube 3–5 mm long, not dilated very much towards the apex, villous within, lobes lanceolate-subulate, about 4 mm long, reflexed at anthesis; anthers of thrum flowers over 1 mm long, exerted at least 1 mm beyond corolla tube at anthesis; pistil with style about 4 mm long. Fruit white, ellipsoid-globose, becoming very succulent, longer and globose when fully ripe, 1–1.4 cm long. Pyrenes with 1 to several poorly defined and irregular ridges on back, endosperm ruminant.

The type specimen is 1 of several cited by Lauterbach & Schumann (op. cit.) in their original description and it has been maintained in excellent condition. I have therefore herein designated it as lectotype. *Lauterbach 964*, also in WRS�, was also cited in the original description and is a syntype.

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Herbarium C. Lauterbach.
No. 1165.
Psychotria ectasiphylla (H. B. K.) Schott
Lauterbach & W. G. S. W. G.
Gogol, East New Guinea (Papua New Guinea)
Fl. in fr.
New Guinea Aug 26. 24.
1946

Herbarium C. Lauterbach.
No. _____

Fig. 36. *Psychotria ectasiphylla*. Lauterbach 1165 (WRS�, lectotype).

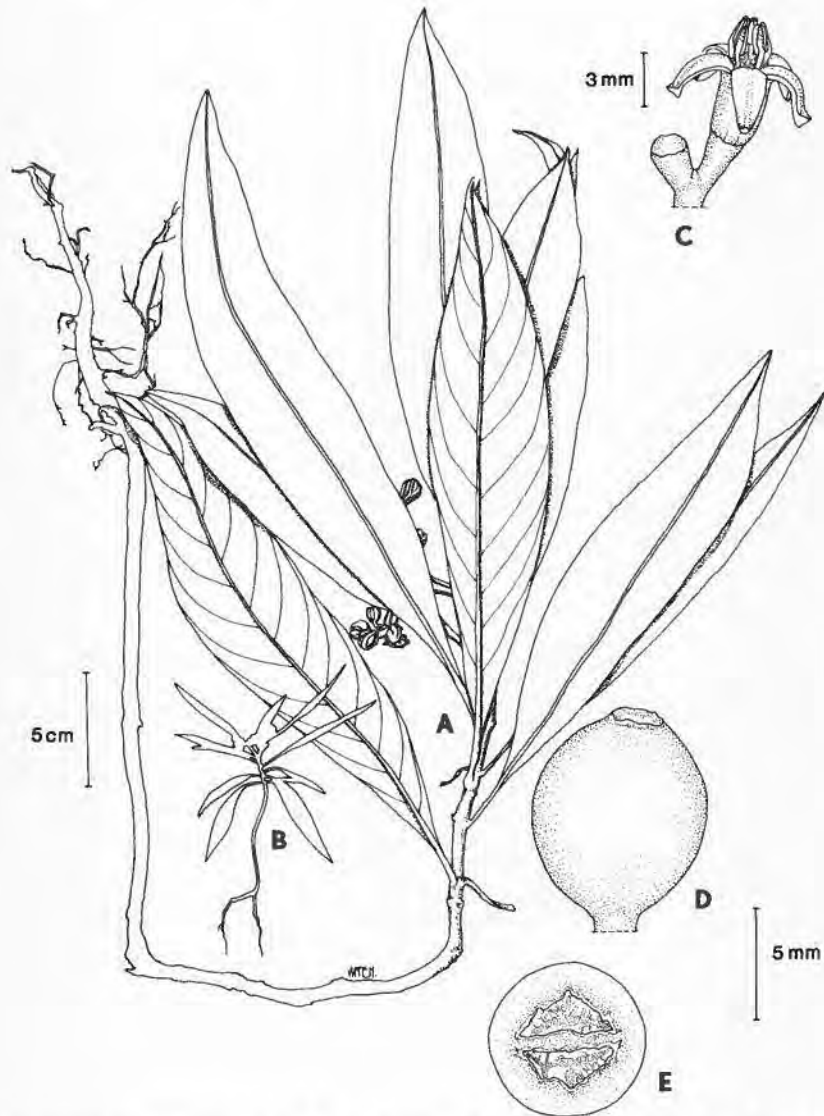


Fig. 37. *Psychotria ectasiphylla*. A-B, *Sohmer & Katik LAE 75177* (LAE): A, habit; B, habit as observed in the field before preparation of specimens; C-E, *Sohmer & Katik LAE 75158* (BISH): C, flower; D, fruit; E, fruit x.s.

Other Specimens Examined. IJ. Djayapura, *Kostermans & Soegeng* 72 (L). PNG. WS: Ambunti S.P., *Townsend* 108 (LAE), 113 (LAE). M: Bernal Riv, *Sohmer & Katik* LAE 75158 (CANB, LAE); Madang S.P.: Ninam Riv, *Sohmer & Katik* LAE 75177 (LAE); Gogol Riv, *Katik* NGF 46832 (CANB, LAE), *Lauterbach* 927 (WRSL), 964 (WRSL); Madang-Usino Hwy, on N bank of Gogol Riv, *Sohmer & Katik* LAE 75186 (LAE), LAE 75187 (LAE), LAE 75188 (L, LAE); Usino S.P.: Amiaba Riv, *Foreman et al.* NGF 45863 (LAE), NGF 45870 (LAE).

Distribution. Lowland forest flood plains near or adjacent to rivers or streams in dense shade, or in areas of high soil-moisture content if not actual flood plains, generally at elevations not exceeding 200 m. Apparently found principally in the north-central lowland forests of New Guinea from Madang Province of PNG westward into Irian Jaya.

Distinguishing Features. Plants short, often unbranched; leaf blades generally long, narrow-elliptic, attenuate at both ends, lateral veins steeply ascending; inflorescence compressed with a stout midrib and cluster of branches at apex.

Remarks. This is a very distinctive species. It is given to reduction via neoteny; some individuals growing in sandy soils along streams subject to flooding are reduced to unbranched plants less than 0.5 m tall that produce flowers and fruit. In the field the leaves are purplish pink below and the stipules are the same color and often conspicuously curved. *Lauterbach & Schumann* (op. cit.) had good material in hand when describing the taxon for the first time, and all of my own collections match the type material from WRSL very well.

A *Schlechter* collection (14488), of which K and WRSL both have duplicate material, was referred to var. *angustifolia* (of which I have seen no type material) by *Valeton* (1927) and apparently was based on a handwritten determination (according to *Valeton*) by *Lauterbach*. I do not understand the status of the taxon represented by this collection.

Psychotria flaviramula Sohmer, sp. nov. Fig. 38.—Type: *Kalkman* BW 3497 (LAE, holotype; BO, CANB, L, LAE, PNH, isotypes), IRIAN JAYA: lower slopes of Cyclops Mts nr Djayapura, in secondary shrub vegetation in burnt-over area at 420 m, 14 May 1956.

Frutex 1.5 m altus est, ramulis in sicco pallide luteo-badiis, stipulis valvatis coriaceis glabris anguste ovatis apice acuminato, petiolis 1.2–1.5 cm longis,

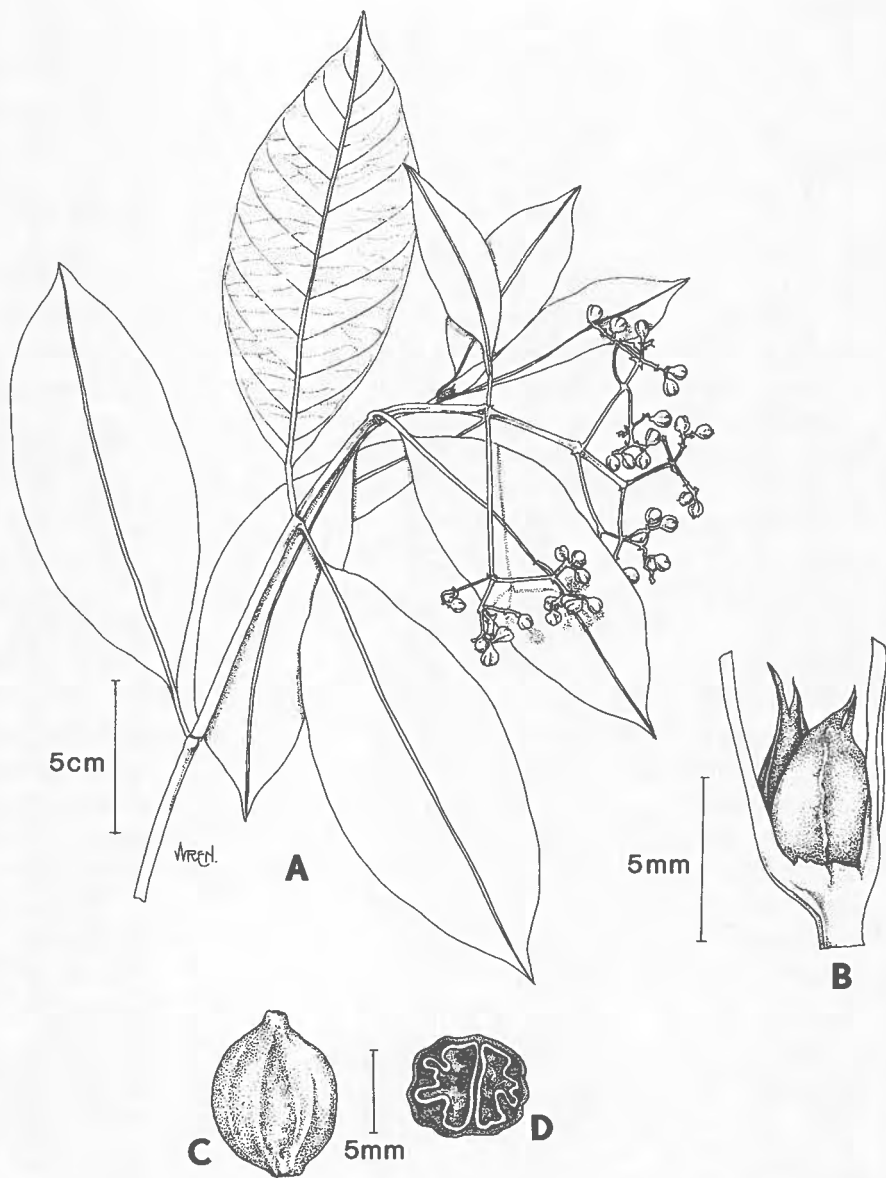


Fig. 38. *Psychotria flaviramula*. Kalkman BW 3497 (LAE, holotype): A, habit of fruiting branch; B, stipules; C, fruit; D, fruit x.s.

laminis $3.5 \times 9-6.5 \times 15.5$ cm in ellipticis semicoriaceis basi acuta apice breve acuminata in sicco pallide luteo-badiis nervis lateralibus 8-11 in dimidio quoque, infructescentis usque ad 10 cm longa latoque robusta, axi principali solitario per partem $\frac{1}{2}$ basali saepe in basi cum ramulis simulantibus minoribus, ramis et floribus a bracteis 2-3 mm longis ovato-subulatis acuminatis sustentibus, floribus incognitis, fructibus 6-7 mm longis obovoideo-turbinatis albis binis centralibus subtilibus acribus, endospermo valde ruminato.

Shrub 1.5 m high; twigs drying a light yellow-brown. Stipules valvate, coriaceous, glabrous, narrowly ovate, apex acuminate (not cleft). Leaves with petioles 1.2-1.5 cm long; blades semicoriaceous, glabrous, elliptic, $3.5 \times 9-6.5 \times 15.5$ cm, lateral veins 8-11 per side, apex short-acuminate, base acute, drying a light yellow-brown. Inflorescence robust (in fruit), to 10 cm long and as wide, with 1 main axis unbranched about $\frac{1}{2}$ length from base, 2 primary nodes with verticillate branching at each, often with smaller but similar lateral axes from base of main one, branches and ultimate cymules subtended by ovate-subulate, acuminate bracts 2-3 mm long. Flowers unknown. Fruit white at maturity, glabrous, obovoid-turbinate, 6-7 mm long. Pyrenes with 4 prominent ridges on back, the 2 central ones thin and very sharply defined, endosperm conspicuously ruminant.

Distinguishing Features. Plant parts drying a light yellowish brown; stipules acuminate, not cleft; pyrenes with 4 ridges on back, the 2 in center narrow and sharply defined, endosperm conspicuously ruminant.

Remarks. This taxon appears to have a strong resemblance to *P. paludicola* Merrill & Perry. It is also from the same area of New Guinea as *P. paludicola*. I have recognized it as a separate species because the leaves are smaller and have fewer lateral veins and the fruit is smaller. Future collecting may fill the morphological gap between these recognized taxa and make this taxon superfluous.

Psychotria foremanii Sohmer, sp. nov. Fig. 39.—Type: *Foreman, Noble & Farley* NGF 45912 (LAE, holotype; A, BO, BRI, CANB, K, L, isotypes), PNG: MADANG PROV: Usino Dist: Amiaba Riv, in lowland rain forest at ca. 160 m, 10 Jan 1970.

Frutices vel arbores 2.5-4 m alti sunt, stipulis valvatis usque ad 0.5 cm longis ovato-oblongis glabris apice acuto, petiolis 2-3.5 cm longis, laminis $4 \times 10-9 \times 17.5$ cm coriaceis obovato-ellipticis vel oblanceolato-ellipticis in basi attenuatis in apice rotundatis obtusis breve acutisve nervis lateralibus 14-16 in

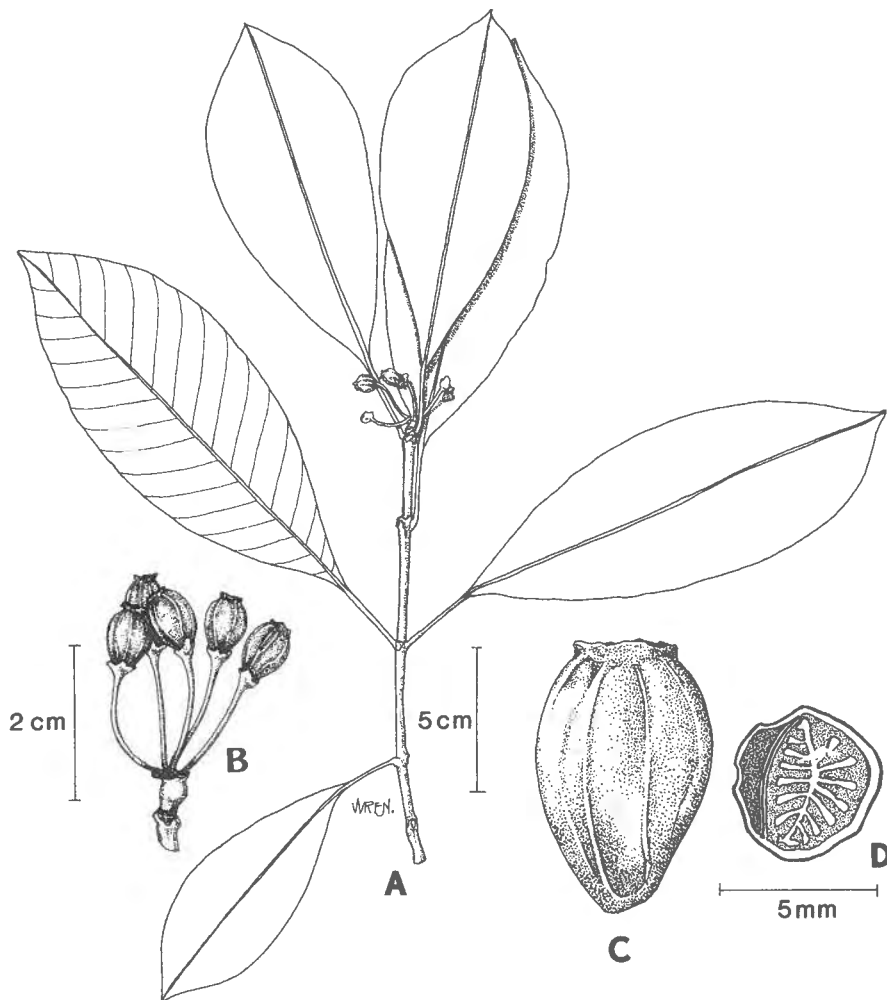


Fig. 39. *Psychotria foremanii*. Foreman *et al.* NGF 45912 (LAE, holotype): A, habit of fruiting branch; B, close view of inflorescence; C, fruit; D, fruit x.s.

dimidio quoque, inflorescentia cum 4-5 pedunculis 1.2-1.5 cm longis subaequalibus eis in apice cum 4-9 floribus sessilibus congregatis omnibus a 2 bracteis late ovatis sustentibus, floribus incognitis, fructibus 10 mm longis tubo calycis excluso ellipsoideo-obovoideis rubris, pyrenis in dorso subangulosis aliter laevibus, endospermo prominente ruminato.

Shrubs or small trees 2.5-4 m high. Stipules valvate, glabrous, ovate-oblong, to 0.5 m long, apex acute, not cleft. Leaves with petioles 2-3.5 cm long; blades

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coriaceous, glabrous, obovate-elliptic to oblanceolate-elliptic, $4 \times 10-9 \times 17.5$ cm, lateral veins 14-16 per side, apex round, obtuse to short-acute, base attenuate. Inflorescence with 4 or 5 nearly equal peduncles from base, each 1.2-1.5 cm long, terminated by a cluster of 4-9 sessile flowers, each cluster subtended by 2 broadly-ovate bracts, the contracted main axis of the inflorescence often appearing to be a continuation of the stem. Mature flowers unknown. Fruit red when ripe, ellipsoid-obovoid, about 10 mm long (not including persistent calyx tube). Pyrenes somewhat angled on back, but otherwise smooth, endosperm prominently ruminate.

Other Specimens Examined. PNG. M: Usino S.P.: Amiaba Riv, Foreman et al. NGF 45886 (CANB, K, L, LAE). G: Kukipi S.P.: N of Malalaua, Paijmans 1218 (CANB).

Distribution. Known from the Amiaba Riv in Madang Province and Malalaua in Gulf Province.

Distinguishing Features. Leaf blades coriaceous, 14-16 lateral veins per side; inflorescence of 4-5 nearly equal peduncles, each terminated by a cluster of 4-9 sessile flowers.

Remarks. This species closely resembles *P. tripedunculata*, sp. nov., but unlike that species, it has an inflorescence with 4-5 peduncles that probably represent verticillate branches derived from a much reduced inflorescence axis.

Psychotria frodinii Sohmer, sp. nov. Fig. 40.—Type: *Frodin* NGF 32156 (LAE, holotype; L, LAE, isotypes), PNG: WEST SEPIK PROV: Telefomin Dist: Hindenberg Range, nr Nerenarip Vill, in secondary forest in burnt-over area at ca. 2,600 m, from a small tree ca. 5 m tall, 13 Sep 1966.

Frutices vel arbores parvae usque ad 5 m alti sunt ramulis juvenalis dense pubescentibus vel tomentosus stipulis valvatis usque ad 1.5 cm longis fissis lobis acuminatis, petiolis 0.2-1 cm longis, laminis $0.7-4 \times 3.4-3.5 \times 9.3$ cm rigide coriaceis prominente rugosis ovato-ellipticis infra obscure rubri-badie pubescentibus in sicco obscure rubri-brunneis nervis lateralibus 10-16 in dimidio quoque nervis tertiis supra valde impressis infra valde prominentibus, inflorescentia cum axi solitario et per partem $\frac{2}{3}-\frac{3}{4}$ basalem vel simulanti et cum 1-2 nodis primariis cum ramulis lateralibus oppositis eis in apice cum 1-2 cymis trifloriferis pubescentibus, calyce et hypanthio minus quam 3 mm longis lobis breve acutis

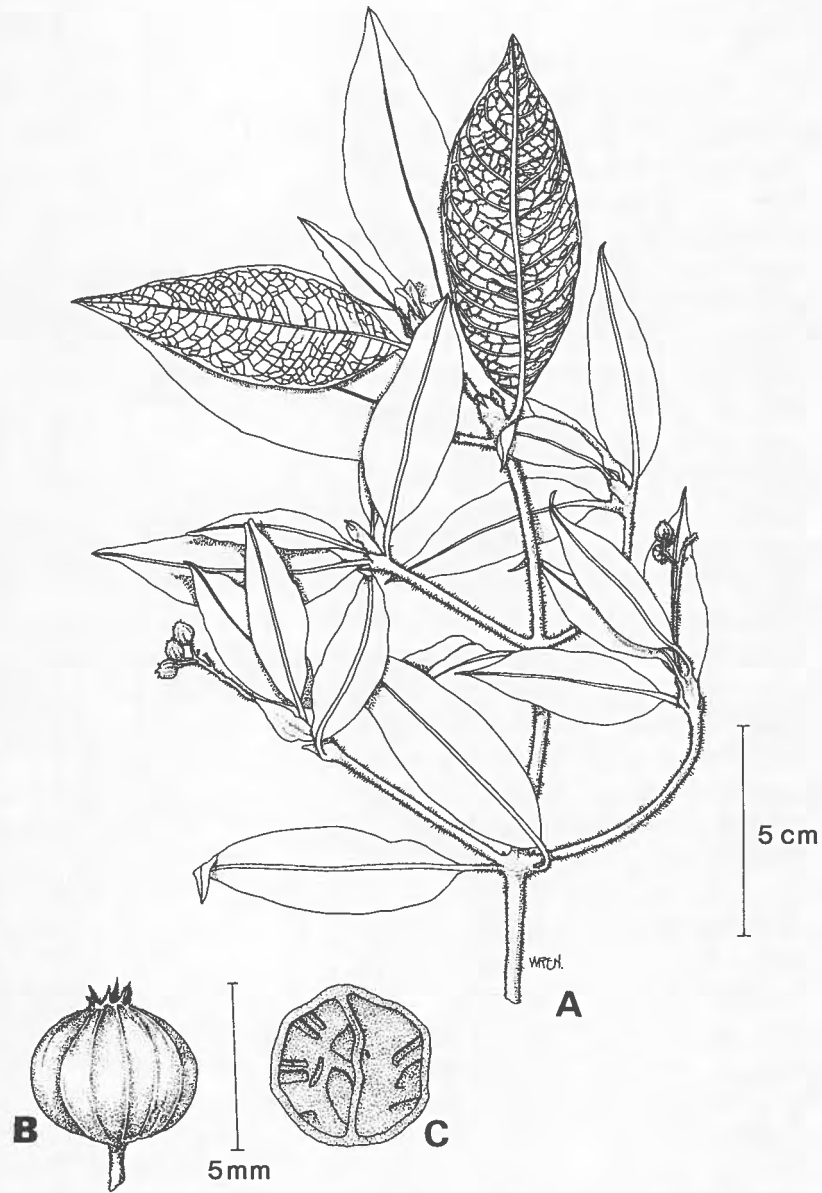


Fig. 40. *Psychotria frodinii*. Frodin NGF 32156 (LAE, holotype): A, habit of fruiting branch; B, fruit; C, fruit x.s.

dense pubescentibus, corollis in alabastro visis, fructibus 6–8 mm diametro globosis albis, pyrenis in dorso cum costis vel liris, endospermo prominente ruminato.

Shrubs or small trees to 5 m high; young twigs covered with a dense pubescence or tomentum. Stipules valvate, pubescent, to 1.5 cm long, cleft, the lobes acuminate. Leaves with petioles 0.2–1 cm; blades very stiff-coriaceous, prominently rugose, ovate-elliptic, $0.7 \times 4-1 \times 3.4-3.5 \times 9.3$ cm, lateral veins 10–16 per side, the tertiary veins strongly impressed above, very prominent below, pubescent below with dark reddish brown hairs. Inflorescence either 1 main axis unbranched $\frac{2}{3}$ – $\frac{3}{4}$ distance from base, or 1 main axis and 2 smaller, but similar, lateral ones from base, each with 1–2 primary nodes with opposite branches at each, the branches terminated by 1 or 2 cymes of 3 flowers each. Flowers 4- or 5-merous, dimorphic(?), on short, pubescent pedicels; calyx and hypanthium together less than 3 mm long, lobes short acute, densely pubescent; corolla tube about 5 mm long, lightly pubescent without, villous within at throat, the lobes ovate, about 2 mm long, pubescent without; style unexpanded in thrum flower, about 3 mm long; anthers about 1 mm long, exerted 1–2 mm beyond throat of corolla tube (in thrum flowers). Fruit white at maturity, globose, 6–8 mm in diameter. Pyrenes with ribs or ridges on back, endosperm prominently ruminato.

Other Specimens Examined. PNG. WS: Hindenburg Range, Feramin Val, *Frodin* NGF 32185 (L, LAE); Mt Amdutakin, *Vink* 17618 (A, L, LAE).

Distribution. Known only from the Hindenberg Range in West Sepik Province. Occurs as part of regrowth in secondary forests at elevations from ca. 2,400 to 2,600 m.

Distinguishing Features. All young plant parts densely pubescent; leaf blades strongly rugose and coriaceous, less than 9 cm long, drying a dark reddish brown; fruit white; endosperm ruminato.

Remarks. This species, very distinctive due to the small, coriaceous and rugose, pubescent leaves that dry a dark reddish brown, is probably related to *P. mur-murensis*, sp. nov. The specific epithet is dedicated to the collector, David Frodin, a friend and colleague who spent nearly 20 years in New Guinea, mostly at the University of Papua New Guinea in Port Moresby.

Psychotria galorei Sohmer, sp. nov. Fig. 41.—Type: *Henty & Frodin* NGF 27349 (LAE, holotype; L, isotype), PNG: WEST NEW BRITAIN PROV: Wariai Dist: upper Pulie Riv nr Benim Vill, in lowland rain forest at ca. 160 m, from a shrub nearly 3 m high with pendulous red fruit, 23 Mar 1966.



Fig. 41. *Psychotria galorei*. Henty & Frodin NGF 27349 (LAE, holotype): A, habit of fruiting branch; B, fruit x.s.; C, fruit.

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Arbores parvae 2.5–5 m altae sunt stipulis licet calyptratis, floribus juvenalibus et foliis per fissuram lateralam longitudinalem emittentibus, petiolis 1–4.5 cm longis, laminis chartaceis ellipticis 7×25 – 8×27.5 cm in basi et apice acutis acuminatisve in sicco luteo-viridibus nervis lateralibus 9–17 in dimidio quoque, inflorescentia longe pedunculata pendenti axi principali 6–20 cm longo eramoso (rare cum ramis simulantibus minoribus basilibus) nodis 1–2 primariis cum ramulis verticillatis, floribus immaturis calyce et hypanthio 2 mm longis truncato vel cum lobis parvis acuto-obtusis fructibus 12–14 mm longis obovoideo-globosis rubris, pyrenis in sectione transverso subhemisphaericis sed in dorso compressi et cum loris binis vadosis, endospermo laevi et homogenio et in lateri ventrali ab epidermo invaginato.

Small trees 2.5–5 m high. Stipules probably calyptrate, the young flowers and leaves emerging laterally. Leaves with petioles 1–4.5 cm long; blades chartaceous, elliptic, 7×25 – 8×27.5 cm, lateral veins 9–17 per side, apex and base acute or acuminate, drying yellow-green. Inflorescence long-pedunculate, the unbranched main axis 6–20 cm long (rarely with similar, smaller basal branches), 1 or 2 primary nodes with verticillate branching at each, over 1 mm wide, inflorescence pendent in flower and fruit. Flowers immature; calyx and hypanthium together about 2 mm long, truncate or with lobes small, acute-obtuse at summit. Fruit red when ripe, obovoid-globose, 12–14 mm. Pyrenes more or less hemispherical in cross section, back compressed laterally to form 2 shallow ridges with a sulcus between them, endosperm not ruminant, smooth and homogeneous, with a single invagination of the seed coat into the endosperm on the ventral surface.

Other Specimens Examined. PNG. MB: Normanby I, nr Miadeba airstrip, *Croft et al.* LAE 68855 (BISH, L, LAE). WNB: N of Gilnit Vill, *Frodin* NGF 26215 (L, LAE); nr Aesiga Vill, *Frodin* NGF 26667 (BO, CANB, L, LAE, NY).

Distribution. Lowland rain forests from sea level to about 160 m in Milne Bay and West New Britain provinces.

Distinguishing Features. Leaf blades often perfectly elliptical, both ends pointed symmetrically; inflorescence very long pedunculate.

Remarks. This species is relatively easy to recognize by its large, often perfectly elliptical, chartaceous leaves pointed at both ends and by its very long peduncles. The species is named after Mr. Michael Galore, who was Assistant Director of the Division of Botany, Office of Forests at Lae, during my tenure there. Without his cooperation, this work could not have been accomplished.

Psychotria gawadacephalis Wernham, J. Bot. (Brit. & Foreign) 56: 133 (1918).

Fig. 42.—Type: *Forbes 573* (BM, lectotype, here designated), PNG: CENTRAL PROV: Soger District: Mt Gawada at “4000 ft.”

Small trees or shrubs 2–5 m tall; twigs pubescent. Stipules valvate, ovate, pubescent, apex not cleft. Leaves with petioles 2–10 mm; blades chartaceous to thinly coriaceous, narrowly elliptic to somewhat obovate, 1 × 4–4 × 10 cm, lateral veins 5–10 per side, apex acuminate, base obtuse to acute. Inflorescence sessile, 3–7 flowers, no bracteoles or bracts. Flowers 4- or 5-merous, dimorphic, on pedicels 2–3 mm long; hypanthium and calyx tube together 2–3 mm long and as wide, hairy, the lobes about 1 mm, obtuse; corolla thick, densely hairy throughout, the tube 10–14 mm long, the lobes straplike, about 1 mm wide, as long as the tube; anthers 6–7 mm long in thrum flowers, 2–3 mm and included in pin flowers(?). Fruit red at maturity, globose-obovoid, 8–10 mm long, 6–8 mm wide, somewhat hairy while immature. Pyrenes barely ribbed on back, endosperm prominently ruminant.

Other Specimens Examined. PNG. WH: Mt Hagen area, between Ambra Lake & Mt Ambra, *Powell et al.* UPNG 2391 (UPNG). Ce: Mori Riv, *Henty & Lelean* NGF 41879 (K, L). N: Mt Suckling, 3.22 km S of Mafo Vill, *Paijmans* 23 (CANB); ca. 5 km N of Wanigela airstrip, *Hoogland* 4263 (L). MB: nr Mayu I, junction Ugat & Mayu rivers, *Streimann & Katik* NGF 28642.

Distribution. Moist to dry forests from ca. 50 to 700 m.

Distinguishing Features. Leaf blades generally less than 10 cm long, pubescent below; inflorescence sessile, with 3–7 flowers; calyx and hypanthium 2–3 mm long and wide; corolla densely hairy, tube 10–14 mm long, lobes as long.

Remarks. This distinctive species is set apart by the densely hairy corollas of the pedicellate flowers, and the sessile inflorescence.

Psychotria giluwensis Sohmer, sp. nov. Fig. 43.—Type: *Womersley* NGF 14246 (LAE, holotype; L, isotype), PNG: WESTERN HIGHLANDS PROV: Tambul District: Mt Giluwe, at ca. 2,600 m, May 1962.

Frutices vel arbores 2–5 m alti fere omnino pubescentibus sunt, stipuli valvatis 1.5–2 cm longis obovato-oblongis apice acuto varie obtuso rare in apice fisso vel dumtaxat bidentatis spalterem in basi pubescentibus, petiolis 1–2 cm longis,

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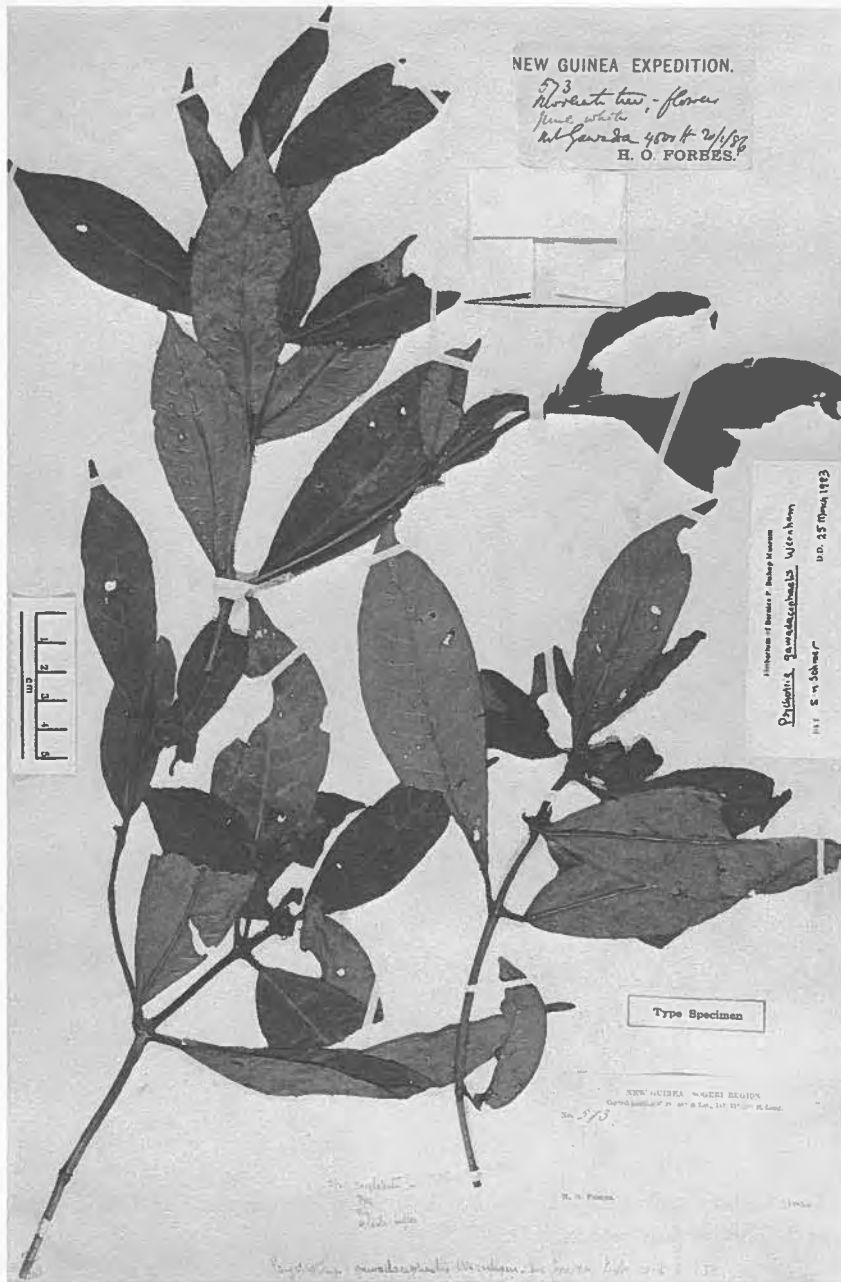


Fig. 42. *Psychotria gawadacephalis*. Forbes 573 (BM, lectotype).



Fig. 43. *Psychotria giluwensis*. Womersley NGF 14246 (LAE, holotype): A, habit of sterile branch; B, habit of flowering branch.

laminis 1.5×5.5 – 5.5×13 cm infra pubescentibus nervis lateralibus 8–12 in dimidio quoque, inflorescentia pendenti vel taxa axi principali 2–3 cm longo in apice triramoso ramulis in apice cum 2–3 cymulis axibus omnibus pubescentibus, pedicellis brevibus, floribus 5-meris dimorphis, hypanthio et tubo calycis 1.5–2.5 mm longis lobis 3–5.5 mm longis linearibus omnino pubescentibus, corollis albis subtilibus paululum pubescentibus tubo 10 cm longo in apice dilatato intra pubescenti lobis 3–5.5 mm longis ovato-oblongis in flore reflexis, antheris in floribus thrumaceis 1.5 mm longis, fructibus 5 mm diametro globosis albis(?) pubescentibus, pyrenis in dorso laevibus, endospermo ruminato.

Shrubs or small trees 2–5 m tall, pubescent on nearly all plant parts. Stipules valvate, obovate-oblong, 1.5–2 cm long, pubescent at least at base, apex acute to obtuse, not usually cleft, or merely bidentate. Leaves with petioles 1–2 cm long; blades chartaceous to coriaceous, elliptic, 1.5×5.5 – 5.5×13 cm, lateral veins 8–12 per side, pubescent below. Inflorescence pendent or lax, with 1 main axis 2–3 cm long, terminating in a trichotomy, each of the 3 branches terminating in 2–3 cymules, all axes pubescent. Flowers 5-merous, dimorphic, on short pedicels; hypanthium and calyx tube together 1.5–2.5 mm long, the lobes narrow, linear, 3–5.5 mm long, entirely pubescent; corolla white, thin in texture, somewhat pubescent, the tube about 10 mm long, dilated towards the summit, hairy within, the lobes ovate-oblong, 3–5.5 mm long, reflexed at anthesis; anthers about 1.5 mm long in thrums; stigmas about 1 mm long. Fruit white(?) when ripe, globose, about 5 mm in diameter, pubescent. Pyrenes without distinguishable ribs or ridges on back, with endosperm ruminant.

Other Specimens Examined. PNG. SH: Onim, Andrew LAE 57026 (L, LAE). WH: Mur Mur Pass, Womersley & Stone NGF 43749 (LAE).

Distribution. Known only from montane forests of Western Highlands and Southern Highlands provinces.

Distinguishing Features. Plants pubescent; inflorescence lax with a relatively long peduncle; calyx lobes 3–5.5 mm long; corolla tube about 10 mm long.

Remarks. This species is closely related to *P. dolichosepala* from which it can be distinguished by longer calyx lobes, longer corolla tubes, and pendent or lax inflorescences. It is also very similar to *P. mur-murensis*, sp. nov., and would not be separable from the latter were it not for the lengths of the calyx lobes (about 1.5 mm in *P. mur-murensis* and 3–5.5 mm in *P. giluwensis*) and

fruit sizes (7–9 mm in *P. mur-murensis* and about 5 mm long in diameter in *P. giluwensis*).

Most interestingly, this taxon, as well as *P. magnasepala*, sp. nov., comes very close to a group of *Amaracarpus* species recognized by van Royen (1983), particularly to *Amaracarpus giluwensis* van Royen and *A. fimbriatipularis* van Royen. Apparently the only key character separating these 2 species from *Psychotria* as conceptualized by van Royen is the axillary nature of the inflorescence in *Amaracarpus*. In van Royen's figures for these species (#773 for the former and #781 for the latter), he clearly indicates the inflorescences as axillary. However, on all specimens annotated by van Royen that I have seen, the inflorescences are clearly terminal; I have seen no evidence of the distinct and unusual bracteoles shown in his illustration of *A. fimbriatipularis*. Based on the material I have seen, and I have not exhaustively examined material, I could easily include these 2 *Amaracarpus* species in my concept of *Psychotria*. The other *Amaracarpus* taxa treated by van Royen are more clearly in line with concepts of *Amaracarpus* in which axillary flowers are an important character.

Psychotria goodenoughiensis Sohmer, sp. nov. Fig. 44.—Type: Gillison NGF 25281 (LAE, holotype; A, BO, CANB, K, L, isotypes), PNG: MILNE BAY PROV: Kiriwina Dist: nr Guswata, in beach forest at sea level, from an erect understory shrub nearly 3 m high, 1 Oct 1966.

Arbores parvae vel frutices 2–5 m alti sunt, stipulis valvatis usque ad 3 mm longis in tubo vadoso connatis, petiolis 1–5 cm longis, laminis 4.5×11.5 – 8×21.5 cm delicatis tenuioribus membranaceis glabris basi acuminata varie acuto apice acuto varie acuminato in sicco luteo-viridibus nervis lateralibus 8–12 in dimidio quoque, inflorescentia cum axi principali solitario per partem $\frac{1}{5}$ – $\frac{1}{4}$ eramoso nodis alteris primariis 3–4 remotis et verticillatis, floribus 5-meris dimorphicis(?), pedicellis brevibus, calyce et hypanthio usque ad 3 mm longis apice truncato vel cum lobis minutis acutis, fructibus 10–12 mm longis vel longioribus globosis vel globoso-ovoideis in dorso liris acris cum lateribus exterioribus continuentibus et inter eis cum 3–4 cavis spongiosis, endospermo laevi non ruminato.

Small trees or shrubs 2–5 m tall. Stipules valvate, fused at base to form a shallow tube or cylinder, to 3 mm, acute. Leaves with petioles 1–5 cm long; blades delicate, very thin, membranaceous, glabrous, 4.5×11.5 – 8×21.5 cm, lateral veins 8–12 per side, apex acute to acuminate, base acuminate to acute, drying yellow-green. Inflorescence 1 main axis unbranched for $\frac{1}{5}$ – $\frac{1}{4}$ of length from base, the peduncle usually over 3 cm long, and with 3–4 relatively widely

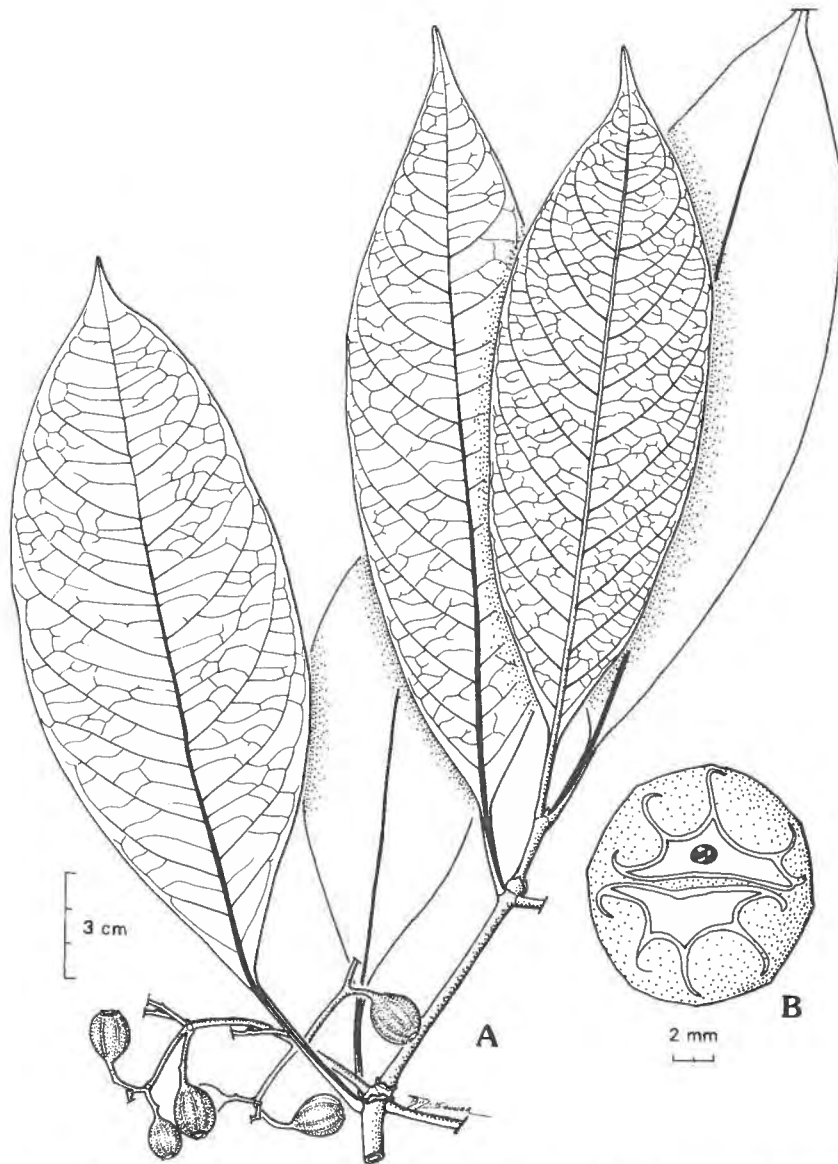


Fig. 44. *Psychotria goodenoughiensis*. Gillison NGF 25281 (LAE, holotype): A, habit of fruiting branch; B, fruit x.s. Note the clearly defined ridges on the back of each pyrene.

spaced primary nodes with verticillate branching at each. Flowers 5-merous, dimorphic(?), on short pedicels; calyx and hypanthium to 3 mm long, truncate at summit or with lobes minute, acute; corolla in bud. Fruit red at maturity, globose or globose-obovoid, 10–12 mm long or longer. Pyrenes unusual, with 2 or 3 thin, sharp ridges on back continuous with outer wall of fruit, forming thereby 3 or 4 spongy tissue-filled cavities between them, endosperm smooth, not ruminant.

Other Specimens Examined. PNG. MB: Goodenough I, *Brass* 24343 (L, LAE); Sudest I, *Brass* 27745 (K, L, LAE), 27775 (K, L, LAE).

Distribution. In rain forests at sea level, often in regrowth. Apparently restricted to the islands in Milne Bay Province.

Distinguishing Features. Leaf blades membranaceous, 11.5–21.5 cm long; inflorescence large (in comparison with *P. membranifolia* Bartl. ex DC., whose foliage it resembles); fruit red at maturity, large, 10–13 mm long; pyrenes with 3–4 sharp ridges on back that connect the pyrene with the outer fruit wall, a spongy tissue developed in the cavities between the ridges.

Remarks. The nature of the pyrenes makes this species unique for the genus in Papuaia.

Psychotria haumugaensis Sohmer, sp. nov. Fig. 45.—Type: *Schodde & Craven* 4761 (LAE, holotype; K, L, isotypes), PNG: MOROBE PROV: Menyamya Dist: Aseki Ridge nr Haumuga Hill, at the margins of primary mid-montane forest at ca. 1,800 m, 31 Mar 1966.

Arbores 1.5–5 m altae sunt, stipuli usque ad 1 cm longis tantum in basi connatis ovatis apice rotundato in nodis persistentibus, petiolis 1–2 cm longis laminis $3 \times 9-5.5 \times 17.0$ cm coriaceis glabris oblanceolato-ellipticis apice breve acuminato nervis lateralibus 10–12 in dimidio quoque eis infra prominentioribus, inflorescentia cum axi principali solitario usque ad 8 cm longo 1–2 nodis superis verticillatis vel axi principali cum 2 alter minoribus basalibus ramulis terminalibus in receptaculo cum 3–5 floribus sessilibus terminantibus, floribus incognitis, fructibus 9 mm longis rubris obovoideis(?), pyrenis in dorso laevibus, endospermo prominente ruminato.

Trees 1.5–5 m tall. Stipules valvate, conspicuously thickened at base, persistent on nodes, ovate, to 1 cm, apex blunt, round. Leaves with petioles (0.5)1–2 cm long; blades coriaceous, glabrous, oblanceolate-elliptic, $3 \times 9-5.5 \times 17.0$ cm,

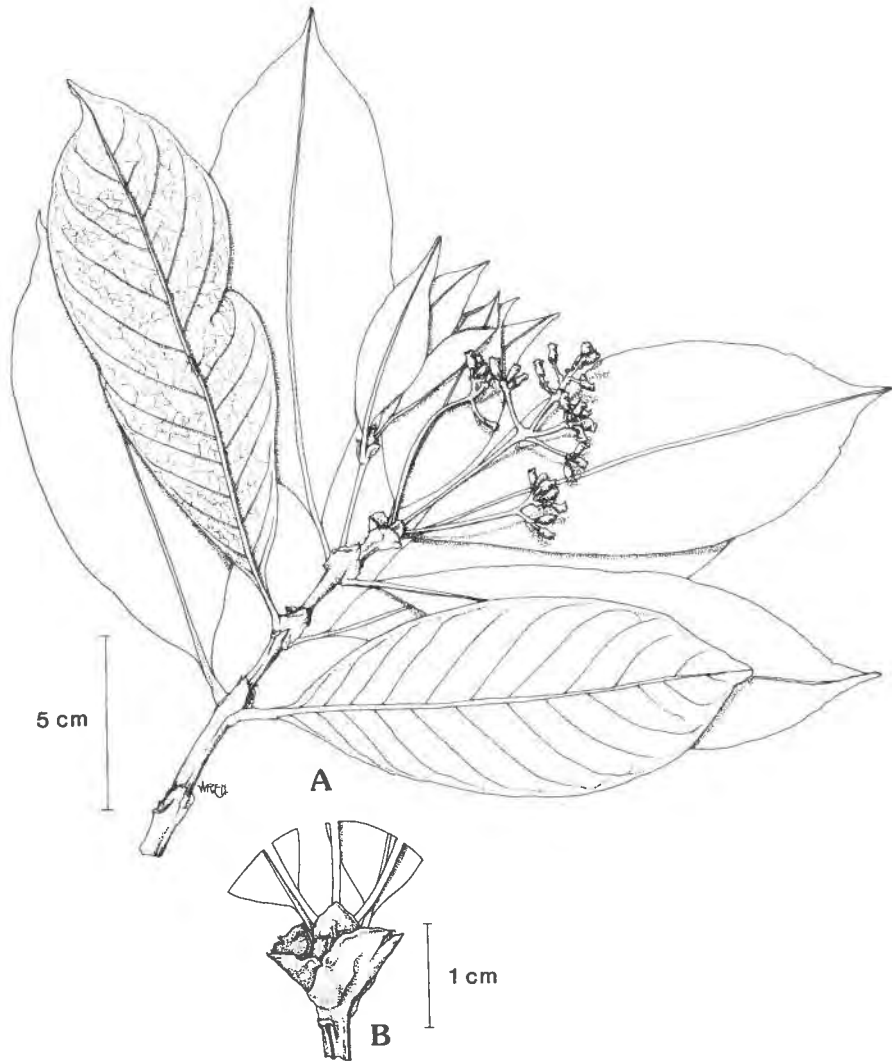


Fig. 45. *Psychotria haumugaensis*. Schodde & Craven 4761 (LAE, holotype): A, habit; B, close view of terminal stipules.

lateral veins 10–12 per side, very prominent below, apex short acuminate, base acute. Inflorescence with 1 main axis to 8 cm long, 1–2 nodes towards top with verticillate branching, or with 1 main axis and 2 smaller, but similar, lateral ones from base, the ultimate branches terminating in receptacles with 3–5 sessile flowers, the axes somewhat tubercled. Flowers unknown. Fruit red when ripe, obo-

void(?), about 9 mm long. Pyrenes smooth on back, no ribs or ridges, endosperm prominently ruminate.

Other Specimens Examined. PNG. EH: Purosa, *Brass* 31661 (BO, K, L, LAE, NY). M: foothills of the Finisterre Range, *Pullen* 5970 (K, L, LAE). Mo: Watut Riv to Mt Amungwiwa, *van Royen* 11191 (UPNG); Sattleberg, *Clemens & Clemens* 431 (BR, L).

Distribution. Montane forests of Finisterre and Aseki ranges.

Distinguishing Features. Persistent stipules thickened at base; leaf blades with lateral veins prominent below; inflorescence branches terminating in headlike receptacles with 3–5 sessile flowers.

Remarks. This is a poorly known taxon whose relationship and morphology will perhaps be better understood with more collecting.

Psychotria hebecarpa Merrill & Perry, *J. Arnold Arbor.* 27: 212 (1946). Fig. 46.—
Type: *Brass* 1419 (A, holotype), PNG: CENTRAL PROV: Aisa Riv.

Prostrate or low shrubs to 1 m tall, densely pubescent throughout. Stipules valvate, ovate, to 1.5 cm long, cleft, lobes drawn out into aristate points generally about $\frac{1}{2}$ entire length. Leaves with petioles 0.8–2 cm long, pubescent; blades chartaceous to semicoriaceous, lanceolate-oblong, $2.2 \times 7-5 \times 14$ cm, primary lateral veins 10–15 per side, the veins particularly pubescent, apex acute, base obtuse to nearly round. Inflorescence generally with a short peduncle to 1.5 cm long and giving rise to 3 stout pedicels to 1 cm long, each terminated by a headlike cluster of flowers, each cluster subtended by linear bracts. Flowers sessile, densely pubescent throughout, each subtended by linear bracts 1–1.5 cm long by about 1 mm wide; calyx very densely pubescent, particularly at hypanthium, tube short, lobes pronounced lanceolate-subulate, 1–1.5 mm long, apices sharply acute; corolla thin in texture, tube about 4.5 mm long [5 mm according to Valetton (1927)]. Pyrenes reported to be 4 mm long, strongly ridged, endosperm not ruminate.

Other Specimens Examined. PNG. W: Oriomo Riv nr Wuroi, *Brass* 5720 (A, BO); nr Rouku, *Henty & Carr* NGF 49685 (K, L); Wassi Kussa Riv, Arufi, *Henty & Katik* NGF 38665 (L, LAE); SE of Morehead Patrol Post, *Pullen* 7192 (A, L, LAE); nr Weam, *Ridsdale & Galore* NGF 33730 (BO).

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Flora of New Guinea.

Collected for the Arnold Arboretum by L. Brass.

Field No. 1419

Botanical Name

Common Name

Locality Misa River, C.D., Papua

Altitude Date 12/5/66

Habit Small tree in light forest

Trunk and Bark

Leaves

Flowers

Fruit White, succulent.

General

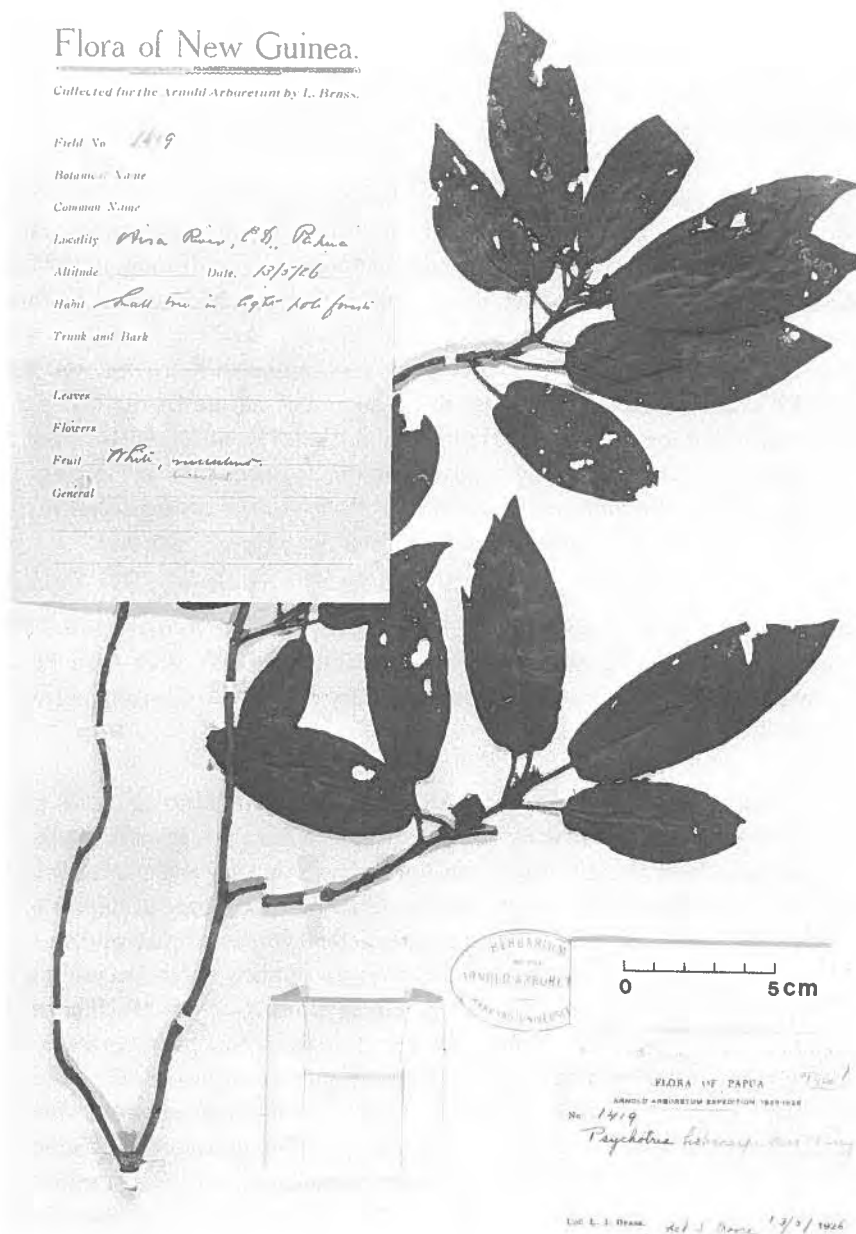


Fig. 46. *Psychotria hebecarpa*. Brass 1419 (A, holotype).

Distribution. Known only from Western and Central provinces; near sea level, growing in ecotones at forest edges or in savannah. The pubescence with which most parts of the plants are covered reflects this species adaptation to relatively drier habitats.

Distinguishing Features. Plants pubescent throughout; stipules cleft, divided nearly to middle, each lobe drawn out into an acuminate point; leaf blades lanceolate-oblong, obtuse to round at base; inflorescence with long, linear bracteoles subtending each flower, the flowers and fruit partially obscured by them.

Remarks. *Psychotria hebecarpa* is very similar to *P. trichocarpa* Veleton, and I had considered combining the 2 taxa. The nature of the leaf blades (thinner and of different shape in the latter) and the inflorescence (with pronounced linear bracts associated with each flower in the former) gave me pause. The bracteate nature of the inflorescence alone in *P. hebecarpa* distinguishes it from most other taxa of New Guinea *Psychotria*.

***Psychotria hentyi* Sohmer, sp. nov.** Fig. 47.—Type: *Sohmer & Kerenga* LAE75196 (LAE, holotype; BO, isotype), PNG: MOROBE PROV: Wau Dist: Head's Hump area above Bulolo, in a disturbed, dry *Araucaria-Castanopsis* forest at ca. 800 m, May 1979.

Arbores parvae vel frutices usque ad 8 m alti omnino cum pilis mollis albis (in vivo) sed in sicco obscure subrubri-badis velatis sunt, stipulis usque ad 2 cm longis valvatis ovato-lanceolatis tantum in basi connatis apice rotundato vel obtuso non fisso omnino pubescentibus, petiolis 1.5–3.5 cm longis, laminis 6.7 × 13–10.3 × 25.3 cm late ellipticis in basi cuneatis vel obtusis in apice obtusis saepe in sicco obscure subrubri-badiis infra dense pubescentibus nervis lateralibus 14–17 in dimidio quoque, inflorescentia nodis principalibus 2(–3) eis verticillatis nodo primario subbasali ramulis plerumque semel ramosis in apicibus cum capiti 10–15 florifero eis sessilibus axibus omnibus dense pubescentibus, floribus 5-meris dimorphicis, calyce et hypanthio minus quam 2 mm longo in apice truncato elobatis pubescentibus, corollis albis crassis extra dense pubescentibus tubo 7–8 mm longo ad apicem paulum inflato intra dense pubescenti lobis 3–4 mm longis ovato-obtusis in flore reflexis, antheris 2 mm longis floribus pinaceis non exsertis, pistilo et stylo exsertis, fructibus 5 mm longis globosis rubris, pyrenis in dorso cum liris irregularibus compluribus, endospermo ruminato.

Small trees or shrubs to 8 m high, densely covered with soft, white (in vivo) hairs on all parts, turning dark reddish brown after drying. Stipules valvate, fused

SOHMER: NEW GUINEA AREA PSYCHOTRIA

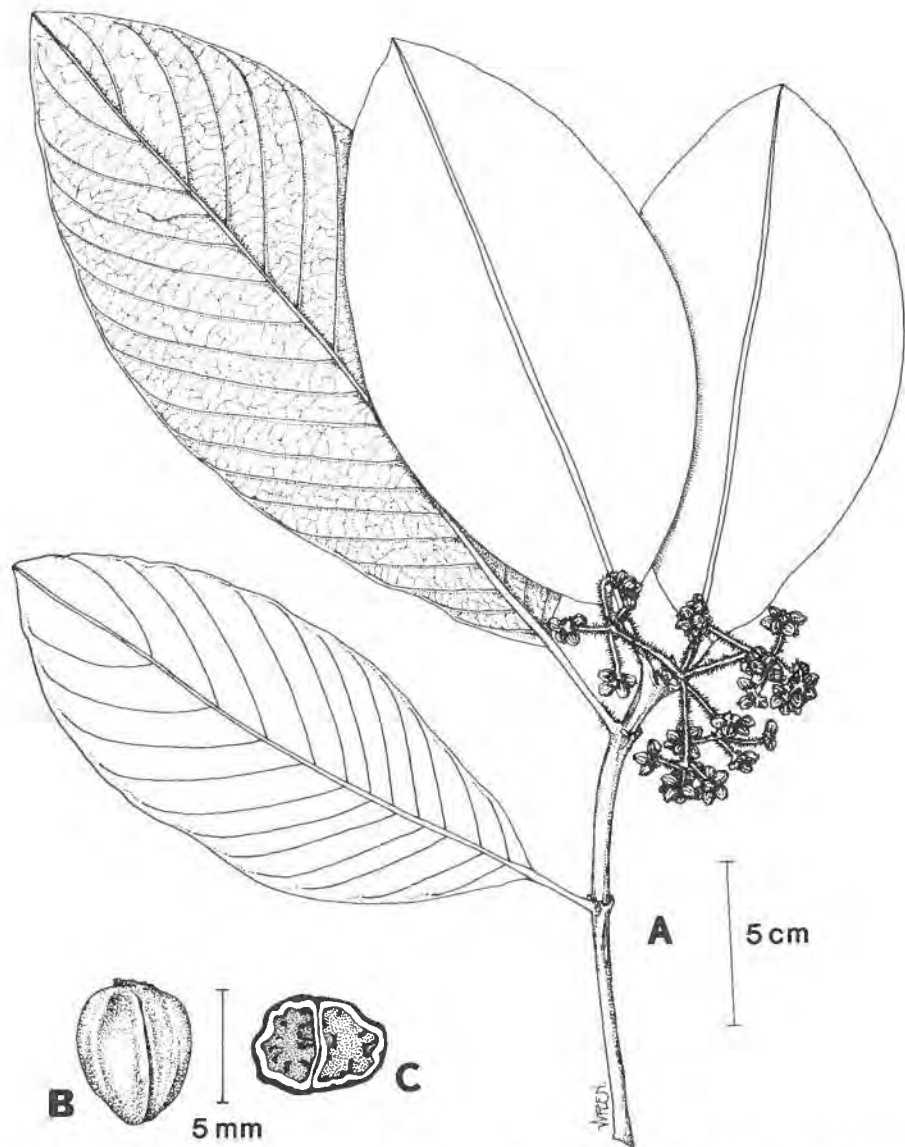


Fig. 47. *Psychotria hentyi*. Sohmer & Kerenga LAE 75196 (LAE, holotype): A, habit of fruiting branch; B, fruit; C, fruit x.s.

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only at base, ovate-lanceolate, to 2 cm long, uniformly pubescent, apex round or obtuse, not cleft. Leaves with petioles 1.5–3.5 cm long; blades coriaceous, broadly elliptic, $6.7 \times 13\text{--}10.3 \times 25.3$ cm, lateral veins 14–17 per side, densely pubescent below, apex obtuse, base cuneate or blunt, often drying a dark, reddish brown. Inflorescence robust, 1 main axis to 4.5 cm long (populations in Irian Jaya longer and less robust), with 2, rarely 3, primary nodes with verticillate branching at each, the 1st node nearly at the base of the main axis, the branches generally branched once more, each ultimate branch terminating in a head with 10–15 sessile flowers, all axes densely pubescent. Flowers 5-merous, dimorphic, sessile; calyx and hypanthium less than 2 mm long, pubescent, truncate at summit, not lobed; corolla white, thick textured, densely pubescent without, the tube 7–8 mm long, somewhat inflated towards summit, densely hairy within, the lobes ovate-obtuse, 3–4 mm long, reflexed at anthesis; anthers about 2 mm long, not exerted in pin flowers; pistil with style 10–11 mm long, stigmas exerted in pins. Fruit red at maturity, globose, about 5 mm long. Pyrenes with several irregular ribs on back, endosperm ruminant.

Other Specimens Examined. IJ. Hollandia, Skyline, *Schram* BW 1829 (BO, CANB, K, L, LAE); Kota Baroe, *McKee* 1937 (L). PNG. Mo: New Yamap, *Streimann & Kairo* NGF 47639 (L); Head's Hump nr Bulolo, *Sohmer & Kerenga* LAE 75197 (L, LAE); Bulolo–Dengalu track, *Streimann & Kairo* NGF 44244 (BFC, L, LAE); Anamapi Crk above Bulolo, nr Dengalu Vill, *Millar* NGF 18888 (A, BO, CANB, LAE, SING), NGF 23009 (K, L, LAE).

Distribution. Centered around the Bulolo area of Morobe Province in lower montane forests from ca. 800 to 1,200 m. Reports from Irian Jaya.

Distinguishing Features. Plants densely pubescent throughout, including calyx and corolla; flowers sessile, in heads of 10–15.

Remarks. This species is easily recognized by its clusters of sessile flowers and fruit on headlike receptacles and by its dense pubescence. It is named for Ted Henty, a long-time employee of the Division of Botany at LAE and senior Botanist during my residence there, who provided a great deal of support both for me and for my family.

Psychotria heterophylla Merrill & Perry, *J. Arnold Arbor.* 27: 198 (1946). Fig. 48.—Type: *Brass* 918 (A, holotype), PNG: GULF PROV: Ihu, Vailala Riv, in rain forest from a "large bush," 9 Feb 1926.

SOHMER: NEW GUINEA AREA PSYCHOTRIA

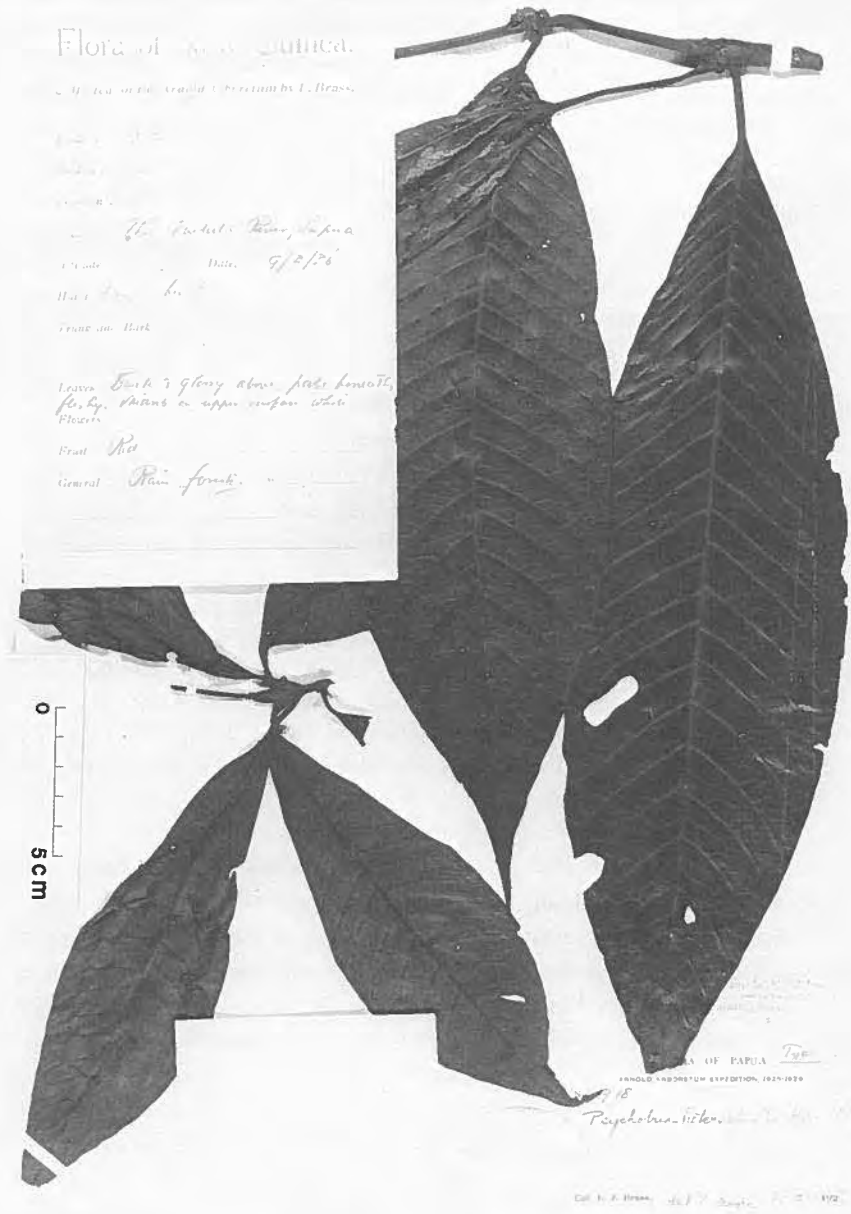


Fig. 48. *Psychotria heterophylla*. Brass 918 (A, holotype).

Shrub or small tree. Stipules valvate, to 1 cm long. Leaves with petioles 1.6–2.6 cm long; blades coriaceous to semicoriaceous, oblong to obovate-lanceolate, $5 \times 16\text{--}9.6 \times 33$ cm, lateral veins 15–25 per side. Inflorescence with 1 unbranched main axis (peduncle) 5–6 cm long, with 2–4 nodes at which verticillate branching occurs, the ultimate branches terminating in cymules. Flowers immature, 4- to 5-merous, dimorphic(?), pedicellate. Mature fruit red, obovoid, less than 5 mm long. Pyrenes with an obtuse taillike appendage, endosperm ruminant.

Remarks. This distinctive species has apparently not been collected since the type collection.

Psychotria hollandiae Valeton, in Lorentz, Nova Guinea 8: 766 (1912). Fig. 49.—

Type: *Gjellerup* 12 (L, lectotype, here designated: BO, isolectotype), IRIAN JAYA: “Nord N. Guinea . . .” nr the Arso Riv, in a forest opening, from a shrub 2.5 m high with white fruit, at 85 m, 18 Mar 1910.

?*Psychotria portus-finschii* (Schumann & Lauterbach) Valeton, Bot. Jahrb. 61: 96 (1927), as new comb.

?*Grumilea portus-finschii* Schumann & Lauterbach, Fl. Deutsch. Schützgeb. Südsee, p. 583 (1901).—Type: *Lauterbach* 1323 (not seen), collected nr Finschhafen.

Psychotria djamunensis Valeton, Bot. Jahrb. 61: 83 (1927).—Type: *Schlechter* 16620 (A, lectotype, here designated; BM, C, K, L, S, isolectotypes), PNG: “Kaiser-Wilhelmsland: Busch in den Wäldern bei der Djamu Klamm,” at 400 m, 2 Oct 1907. [The “Djamu-Klamm” supposedly conflues with the present-day Mudjene Riv to form the Minjim Riv in the East Sepik Prov.]

Tree or shrub 2–5 m tall; young twigs usually pubescent. Stipules valvate, ovate-deltoid, to 1 cm long, usually covered with a reddish (when dry) pubescence, apex acute or obtuse to round, entire or cleft. Leaves with petioles usually 1.5–5 cm long, pubescent; blades semicoriaceous, glabrous above, pubescent below, obovate-elliptic, $2.3 \times 5.5\text{--}10 \times 24$ cm, lateral veins 6–24 per side, apex acute to acuminate, base acuminate to attenuate. Inflorescence pyramidal in outline, 10–35 cm long, longer than the subtending leaves, main axis unbranched $\frac{1}{3}$ – $\frac{1}{2}$ of length from base, 3–8 nodes with verticillate branching at each, the ultimate branches often with linear bracts to 5 mm long, terminating in pedicellate or tightly compressed or sessile cymules, puberulent to densely tomentose. Flowers minute, 5-merous, dimorphic(?), glabrous or densely pubescent, on minute pedicels or sessile, subtended by linear-acicular bracts about 0.2 mm long or not; hypanthium 0.5–0.6 mm long; calyx about 0.2 mm long, lobes minute; corolla white, tube ovate-subulate, about 1 mm long, hairy within, lobes rotate (at anthesis) about the same length as tube; anthers exerted a short distance

beyond corolla throat (in thrum flowers); pistil with stigmas exerted beyond corolla throat. Fruit white, turbinate, 3–5 mm long. Pyrenes with or without prominent ribs in cross section, endosperm ruminant.

I have been able to examine the *Weinland* 364 specimen from BO and would definitely place it within my concept of *P. hollandiae*. The specimen was collected early enough (1889–91) to have been seen by Schumann, and there are 3 annotations identifying it as *P. portus-finschii*, one of which may indeed be Schumann's. If original type material of *P. portus-finschii* is found and turns out, indeed, to be a member of the same taxon as those individuals identified as *P. hollandiae*, the name *P. portus-finschii* will take priority.

Key to Varieties of P. hollandiae

1. Leaf blades 10–24 cm long, lightly pubescent or nearly glabrous below, lateral veins 15–24 per side; inflorescence 13–35 cm long, pubescent or glabrous var. *hollandiae*
 Leaf blades 5.5–20 cm long, lightly pubescent or densely tomentose below, lateral veins 6–17 per side; inflorescence less than 20 cm long, thickly tomentose on axes 2
2. Leaf blades puberulent to pubescent below var. *pioraensis*
 Leaf blades densely pubescent or tomentose below var. *whitei*

Psychotria hollandiae var. *hollandiae*

Trees about 5 m tall. Leaves with blades glabrous above, pubescent below, 4 × 10–10 × 24 cm, lateral veins 15–24 per side, apex acute to acuminate, base acuminate to attenuate. Inflorescence pyramidal in outline, 13–35 cm long, longer than the subtending leaves, main axis unbranched $\frac{1}{3}$ – $\frac{1}{2}$ of length from base, 5–8 nodes with verticillate branching at each, the ultimate branches terminating in pedicellate cymules. Flowers minute, glabrous, subtended by linear-acicular bracts about 0.2 mm long; hypanthium about 0.6 mm long. Fruit turbinate, 3–4 mm long. Pyrenes without prominent ribs in cross section.

Other Specimens Examined. IJ. Geelvink Bay: Nabire, *Kanehira & Hatusima* 11466 (BO). PNG. M: Ramu Riv, nr Daidam, *Robbins* 1760 (CANB). Mo: Lae Botanic Garden, *Hoogland* 6488 (CANB), *Millar* NGF 11772 (BO, K, LAE), Busu Riv, *Floyd* NGF 5501 (BO, CANB, K, L, LAE, SING), *Hartley* TGH 10523 (A, C, CANB, L, LAE), *Henty* NGF 14351 (CANB, L); Korepa, *Gillison & Kairo* NGF 25720 (BFC, BO, CANB, K, LAE), *Kairo* 46 (K, L); Sankwep

logging area, *Fallen 325* (LAE); Sattleberg to Quembung Mission, *Clemens & Clemens 977* (L). N: Iora Val, Isurava Vill, *Hoogland 4023* (CANB, LAE). MB: Modewa Bay, Gara Riv, *Brass 28896* (BO, K, L, LAE, PNH, S). "New Guinea," without further data, *Berol s.n* (K).

Distribution. Across northern New Guinea in lowland rain forest or lower montane forest and regrowth, from 30 to 1,100 m.

Distinguishing Features. Leaf blades usually densely pubescent below, lateral veins 15–24 per side; inflorescence pubescent; flowers minute, corolla tube about 1 mm.

Psychotria hollandiae var. *pioraensis* Sohmer, var. nov. Fig. 50.—Type: *Croft & Akakavara LAE 68252* (LAE, holotype; L, isotype), PNG: EASTERN HIGHLANDS PROV: Kainantu Dist: northern foothills of Mt Piora, at 1,900 m, from a 2 m tall shrub, 9 Sep 1975.

Arbor parva vel frutex 2–5 m alta est novellis crasse subrubri-badiis (in sicco) tomentosis stipulis valvatis usque ad 1 cm longis triangulari-ovatis acutis acuminatisve et in apice fissis, petiolis vulgo 0.5–3 mm longis, laminis 2.3×5.5 – 8×20 cm semicoriaceis oblongis ellipticis oblanceolatisve in basi apiceque acutis acuminatisve nervis lateralibus 6–17 in dimidio quoque, inflorescentia vulgo subrubri-badie (in sicco) crasse tomentosis, axi principali plerumque per partem $\frac{1}{3}$ basalem eramoso, sed in parte $\frac{2}{3}$ apicali cum 3–5 nodis primariis, eis cum 2–6 ramis, ramis principalibus a bracteis ad 0.5 cm longis linearibus sustentis, ramulis ultimis in cymis compactis terminantibus, floribus minutis, alabastris a pelis subrubri-badiis velatis, pedicellis brevioribus vel nullis, hypanthio ad 0.5 mm longo, calyce 0.2 mm longo tubo minuto lobis acutis, tubo corollae 1 mm longo, lobis 1 mm longis ovato-subulate rotatis, antheris in floribus pinaceis 0.2 mm longo, fructibus 5 mm longis turbinatis, pyrenis in sectione transversali cum liris prominentibus, endospermo ruminato.

Small tree or shrub 2–5 m tall, with a thick covering of reddish brown (when dry) tomentum on young stems. Stipules valvate, triangular-ovate, to 1 cm long, usually covered with reddish brown tomentum, apex acute to acuminate, cleft. Leaves with petioles usually 0.5–3 cm long; blades semicoriaceous, oblong, elliptic or oblanceolate, 2.3×5.5 – 8×20 cm broad and long, veins 6–17 per side, usually with a reddish brown pubescence below, apex and base acute or acuminate. Inflorescence with main axis usually unbranched about $\frac{1}{3}$ from base, 3–5 primary nodes with opposite or verticillate branching at each (as many as 6 branches), the

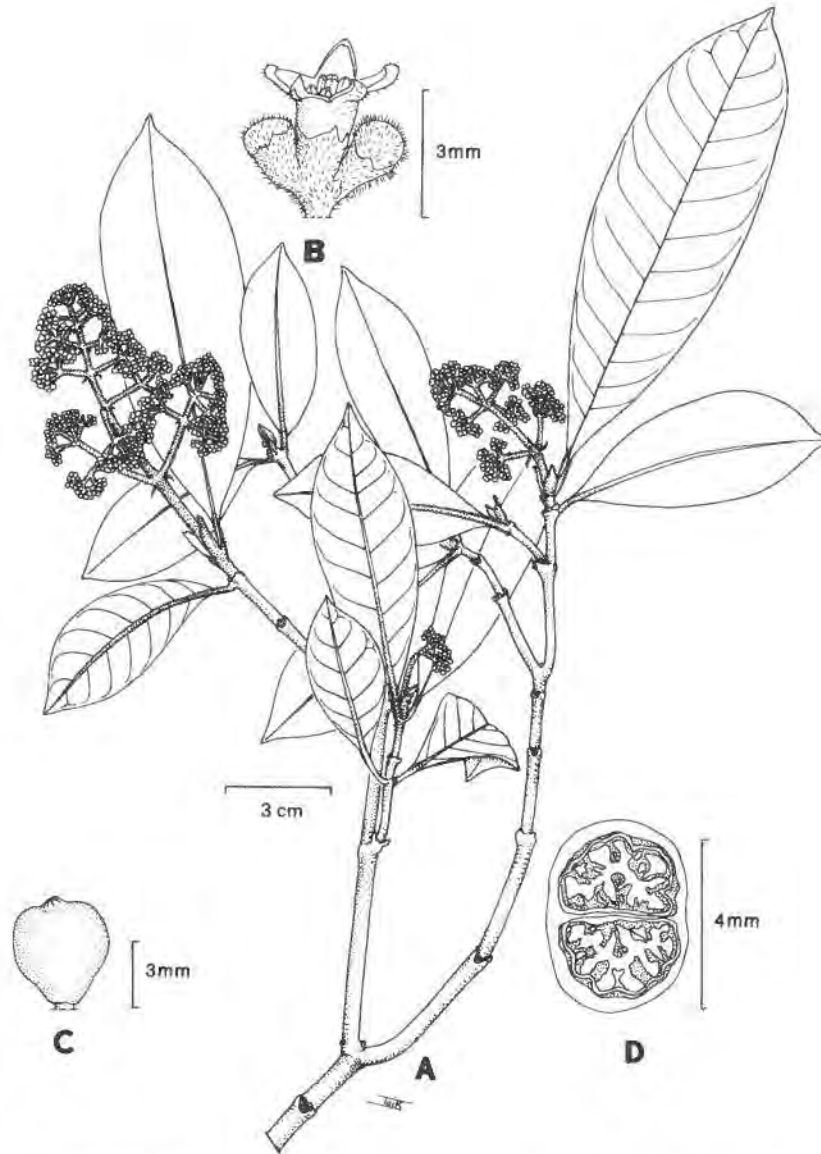


Fig. 50. *Psychotria hollandiae* var. *pioraensis*. A-B, Croft & Akakavara LAE 68252 (LAE, holotype): A, habit; B, cymule with 1 open flower. C-D, Veldkamp & Stevens 5935 (LAE): C, fruit; D, fruit x.s.

main branches subtended by linear bracts to 0.5 cm long, the ultimate branches terminating in tight clusters of cymes, usually thickly covered with a reddish brown (when dry) tomentum on all parts persisting through to fruiting stage. Flowers minute, totally covered with reddish brown hairs in bud, pedicels very short or sessile; hypanthium to 0.5 mm long; calyx to 0.2 mm long, tube minute, lobes acute; corolla tube ovate-subulate, about 1 mm long, lobes rotate, about 1 mm at anthesis; anthers about 0.2 mm long in pin flowers. Fruit about 5 mm long. Pyrenes with prominent ridges in cross section, endosperm prominently ruminant.

Other Specimens Examined. IJ: Radjah Ampat Dist: Sorong, Roefei Riv, *van Royen* 3137 (L); Vogelkop: Sorong, Klamono, *Pleyte* 643 (BO, L). PNG: WS: nr Kilifas Vill, *Foreman & Kumul* NGF 48237 (CANB, LAE). ES: W of Wewak, Hawain Riv area, *Robbins* 2085 (CANB). M: Finisterre Mts, Naho-Rawa, Budemu, *Sayers* NGF 21322 (BM, L); Kaironk, Tient Val, *Bulmer R.B.* 80/36 (UPNG). Mo: Lae Botanic Gardens, *native collector* NGF 4712 (BO, K, LAE, SING); Mt Kaindi, *Nelson & Durandt* 138A (LAE); Edie Crk, *Hartley* TGH 11748 (CANB, K, LAE); nr Dengalu Vill, *Womersley & Whitmore* NGF 19079 (BISH, CANB, L, SING); Nowata airstrip, *Kanis* 1106 (CANB, LAE). N: nr Dareki Vill, *Pullen* 5728 (CANB, LAE). E: Lai Riv, *Flenley* ANU 2034 (CANB, LAE). WH: Pompobus, *Gilli* 535 (L), 539 (L); Wahgi Val, *Powell* UPNG 1542 (CANB, UPNG); Nona-Minj Divide, *Vink* 16538 (BISH, K, LAE). C: Kerangl Riv, *Millar* NGF 40508 (BO, CANB, K, LAE). EH: Mt Michael, *Brass* 31183 (K, LAE, PNH); Purosa, *Brass* 31646 (BO, K, LAE, NY); Kainantu S.P.: *Hays* 433 (LAE); Kassam Pass, *Henty & Vandenberg* NGF 29318 (K); nr Okapa, *Hornibrook* 132 (LAE); Aiyura Forest, *Robbins* 999 (CANB, LAE); Gembogl, *Wade* ANU 7523 (LAE); Mt Piora, *Sands et al.* SAND 1765 (L). MB: Mayu Riv, *Stevens & Veldkamp* LAE 54097 (A, BO, CANB, K, L, LAE); Goropu Mts, *Veldkamp & Stevens* 5922 (BISH, LAE), 5935 (BISH, LAE).

Distribution. Broadly distributed in montane forests from 400 to 2,100 m (usually between 1,500 and 2,000) in the northeastern quarter of New Guinea.

Distinguishing Features. Usually a reddish-brown (on dry specimens) pubescence on all plant parts, particularly the inflorescence axes; flowers sessile or nearly so; fruit turbinate, 5 mm long; endosperm prominently ruminant.

Remarks. This variety most likely represents a higher elevation adaptation. The species is connected by several morphological gradations to *P. micrococca* (Lauterbach & Schumann) Valetton. I have examined the specimens

listed here and compared them carefully to the type of *P. whitei* Moore (*White 702*) and believe that they may represent the same taxon, but I lack enough data to synonymize them. None of the material herein cited for var. *pioraensis* is from Central Province, where the *White* specimen was derived, and the thick tomentum covering the undersides of the leaves of the *White* specimen is lacking from all of the *P. pioraensis* material. For the present I must retain both taxa.

***Psychotria hollandiae* var. *whitei* (Moore) Sohmer, comb. nov.** Fig. 51.

Psychotria whitei Moore, Proc. Roy. Soc. Queensland 34: 58 (1922).—Type: *White 702* (BM, holotype; A, BM, isotypes), PNG: CENTRAL PROV: Goilala Dist: Dilava, Aug 1918.

Shrubs or small trees, young parts pubescent. Stipules valvate, to 1 cm long, densely pubescent, apex usually cleft. Leaves with petioles 0.5–2 cm long; blades coriaceous to semicoriaceous, elliptic to obovate-elliptic, 3 × 9–5 × 15 cm, lateral veins 12–18 per side, densely pubescent below, apex acuminate, base acute. Inflorescence to 12 cm long, 1 main, unbranched axis $\frac{2}{3}$ – $\frac{3}{4}$ total length, 2–3 primary nodes with verticillate branching at each, all axes densely pubescent. Mature flowers unknown. Fruit unavailable, reported white at maturity.

The isotype specimen of *P. whitei* from A is in poor condition but the holotype from BM is good and convinces me that Moore's species is the same as *P. hollandiae*. I have therefore relegated this taxon to varietal status in *P. hollandiae*.

Other Specimens Examined. PNG. Ce: Mafulu, *Brass 5203* (A, BISH, BM, BO, L, MO).

Remarks. Moore indicated his belief that affinity is with *P. rubiginosissima* Wernham and *P. wichmannii*. I believe that the affinities are with the *P. micrococca* complex of species. I have not seen the type of *P. rubiginosissima*, and the description does not at all match the type of *P. wichmannii*. This taxon is very similar to var. *pioraensis*, but the latter lacks the heavy pubescence or tomentum on the under surfaces of the leaves found in this taxon.

***Psychotria inconspicua* Merrill & Perry, J. Arnold Arbor. 27: 205 (1946).** Fig. 52.—Type: *Brass 7045* (A, holotype), PNG: WESTERN PROV: Palmer Dist: Palmer Riv, 2 mi [3.2 km] below junction with Black Riv, sporadic in ridge-forest undergrowth, at 100 m, Jun 1936.

Shrubs or suffrutescent plants. Stipules to 1 cm, not cleft. Leaves with

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Figure 51. *Psychotria hollandiae* var. *whitei*. White 702 (BM, holotype).

petioles 0.6–1.0 cm; blades chartaceous, oblanceolate, 4.2×9.6 – 6.6×18.4 cm, lateral veins 8–12 per side. Inflorescence delicate, main axis unbranched $\frac{2}{3}$ – $\frac{3}{4}$ of length from base, not reflexed at anthesis. Flowers pedicellate; calyx and hypanthium less than 1 mm long; corolla white, bell-shaped, lobes about $\frac{1}{5}$ as long as

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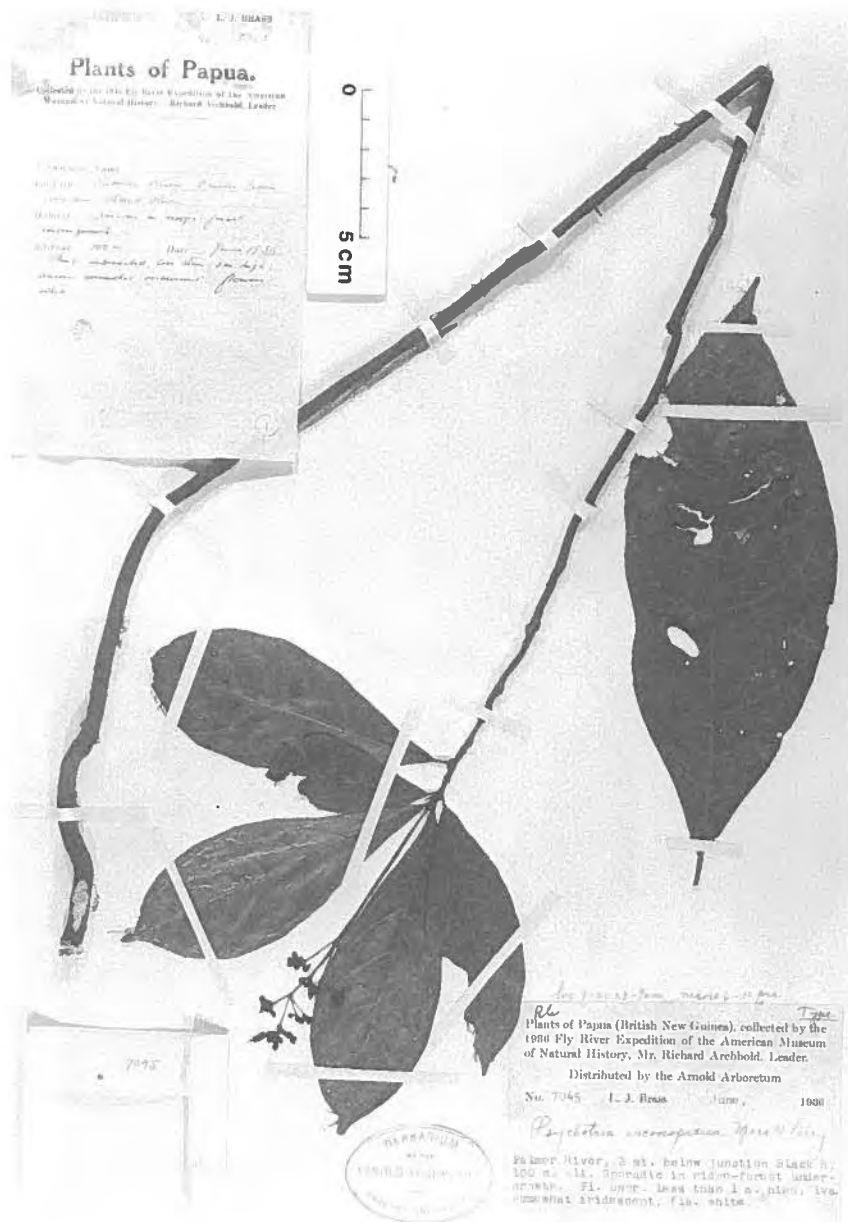


Fig. 52. *Psychotria inconspicua*. Brass 7045 (A, holotype).

tube. Fruit white at maturity, about 5 mm long. Pyrenes unavailable for study, reported to have ruminant endosperm.

This species is not well understood. It is somewhat distinctive in its unbranched habit less than 1 m tall, but I tend to agree with Merrill & Perry (op. cit.), who regarded it as possibly related to *P. leptothyrsa*.

Other Specimens Examined. IJ. Ingembit, road to Opka, Reksodihardjo 399 (K).

Distribution. Known only from one collection site in Irian Jaya and one in Western Province in Papua New Guinea in lowland forest.

Distinguishing Features. Plant unbranched, less than 1 m high; leaf blades chartaceous, oblanceolate, with small petioles; inflorescence delicate, main axis unbranched $\frac{2}{3}$ - $\frac{3}{4}$ of length from base; corolla tube somewhat bell-shaped, lobes short, wide, only $\frac{1}{2}$ as long as tube, yellowish upon drying.

Psychotria johnsii Sohmer, sp. nov. Fig. 53.—Type: *Sohmer & Kerenga LAE 75199* (LAE, holotype; BISH, BO, isotypes), PNG: MOROBE PROV: Wau
Dist: Head's Hump area ca. 6 km from Bulolo, in dry *Araucaria-Castanopsis* forest at about 800 m, from a small straggling tree ca. 3 m high, 30 Apr 1979.

Frutices vel arbores parvae scandenti usque ad 3 m alti sunt, stipulis valvatis late obovatis in apice profunde fassis in basi separatis pubescentibus lobis acuminatis, petiolis 1-3.5 cm longis, laminis 2.6 × 12.5-6 × 23 cm coriaceis anguste lanceolate-ellipticis in basi acutis in apice acuminata infra cum pilis parvis albis nervis lateralibus 13-17 in dimidio quoque in vivo nervis supra valde impressis infra prominentibus, inflorescentia ultra 5 cm long lataque, axi principali solitario et in 2-3 nodis principalibus cum ramulis oppositis, floribus 5-meris dimorphicis pedicellatis glabris, calyce cum hypanthio 3 mm longo lobis irregularibus acutis, corollis albis in textura mediali, tubo 5-6 mm longo ad apicem paulem distento intra piloso, lobis 3-4 mm longis ovato-oblongis in flore reflexis, in floribus pinaceis antheris 1 mm longis, fructibus 6 mm diametro globosis, pyrenis in dorso cum costis irregularibus et binis compluribus, endospermo ruminato.

Shrubs or small, straggling trees to 3 m high. Stipules valvate, not fused at base, broadly obovate, to 3 cm long, pubescent, apex deeply cleft, the lobes acuminate. Leaves with petioles 1-3.5 cm long; blades coriaceous, narrow, lanceolate-elliptic, 2.6 × 12.5-6 × 23 cm, lateral veins 13-17 per side, in vivo the veins conspicuously impressed above, prominent below, fine hairs below, remaining white after drying,

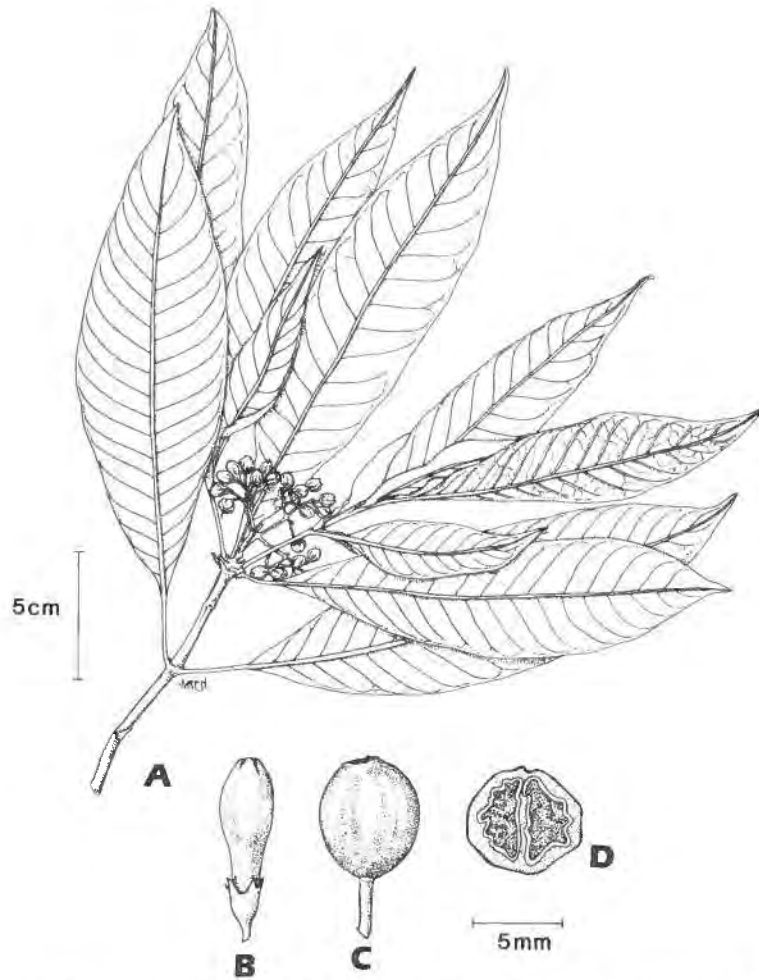


Fig. 53. *Psychotria johnsii*. Sohmer & Kerenga LAE 75199 (LAE, holotype): A, habit of fruiting branch; B, unopened flower; C, fruit; D, fruit x.s.

apex acuminate, base acute. Inflorescence not over 5 cm long and wide, one main axis with opposite branching at the 2-3 principal nodes. Flowers 5-merous, dimorphic, glabrous, pedicellate; calyx and hypanthium together about 3 mm long, lobes irregular, acute; corolla white, medium in texture (not thin or fleshy), the tube 5-6 mm long, somewhat expanded towards the top, hairy within, lobes ovate-oblong, 3-4 mm long, reflexed at anthesis; anthers of pins about 1 mm long. Fruit red when ripe, globose, about 6 mm in diameter. Pyrenes with a number of irregular ribs and ridges on back, endosperm ruminant.

Other Specimens Examined. PNG. Mo: Wau S.P.: Head's Hump area ca. 6 km from Bulolo, *Sohmer & Kerenga* LAE 75198 (LAE), *Lae* 75200 (BISH, BO, LAE), *LAE* 75201 (LAE); trail to Joanggeng Forest, *Clemens & Clemens* 912 (L); Sattleberg, *Clemens* 1073 (L); "PNG," without further data, *Womersley* NGF 3143 (LAE).

Distribution. Known only from low to mid elevation montane forests of the Bulolo area, in Morobe Province.

Distinguishing Features. Leaf blades long and narrow lanceolate-elliptic, pubescent below; inflorescence contracted (but not headlike), flowers not grouped on a common receptacle.

Remarks. This species shares the habitat of *P. hentyi*, the 2 showing the usual pattern among sympatric *Psychotria*. This one is the more shrubby in habit, *P. hentyi* being the taller more treelike species. I have named this species after Mr. Robert Johns, an indefatigable worker in Papua New Guinea botany, who, until 1979, was also endemic to the Bulolo area.

Psychotria kairoana Sohmer, sp. nov. Fig. 54.—Type: *Streimann, Kairo & Sikuvea* NGF 39424 (LAE, holotype; BISH, BO, K, L, PNH, isotypes), PNG: MOROBE PROV: Lae Dist: Musik I, Buso, nr the sea shore in a "stony area," from a tree 5 m high.

Arbor 5 m alta est, stipulis valvatis ovatis usque ad 3 mm longis apice rotundato non fisso, petiolis 0.2–0.5 cm longis, laminis $1.7 \times 6-3 \times 9$ cm subtiliter coriaceis glabris elliptico-oblancoelatis basi attenuato-acuminata apice obtuso varie acuto nervis lateralibus 8–10 in dimidio quoque, inflorescentia cum receptaculo plano cum 10–15 floribus pedicellis brevioribus sine bracteis bracteolisque, floribus 5-meris dimorphicis hypanthio et corolla 1.8 mm longis glabris, corollis albis in textura mediali tubo 4 mm longo glabro ad apicem peculum dilactato intra piloso, lobis in flore reflexis tubum aequantibus, floribus thrumaceis cum antheris 1 mm longis et 2 mm exsertis, stigmatibus minus quam 0.3 mm longis, fructibus rubris.

Tree about 5 m tall. Stipules valvate, ovate, to 3 mm long, summit round, not cleft. Leaves with petioles 0.2–0.5 cm long; blades thin-coriaceous, glabrous, elliptic-oblancoelate, $1.7 \times 6-3 \times 9$ cm, lateral veins 8–10 per side, apex obtuse to acute, base attenuate-acuminate. Inflorescence with a flat receptacular area, about 10–15 short-pedicellate flowers derived from it, no bracts or bracteoles

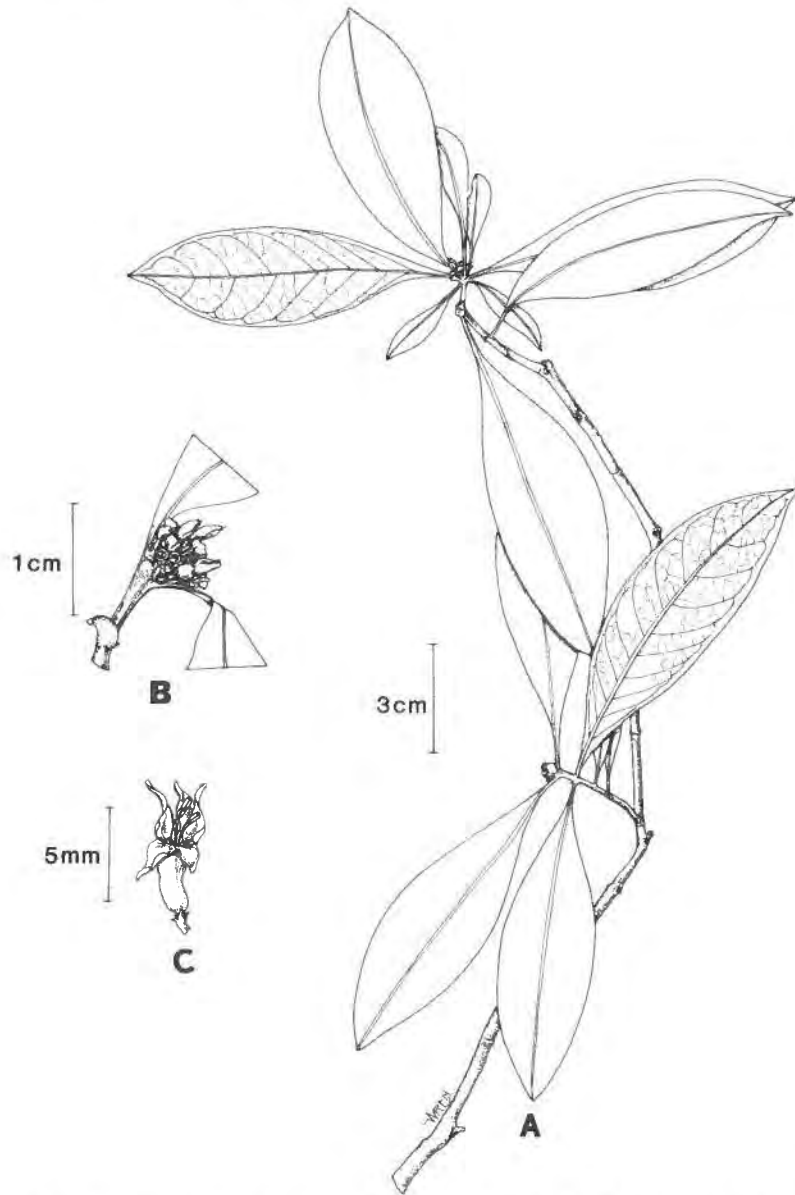


Fig. 54. *Psychotria kairoana*. Streimann et al. NGF 39424 (LAE, holotype): A, habit; B, stem apex with inflorescence; C, flower.

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present. Flowers 5-merous, dimorphic, on short pedicels; hypanthium and calyx glabrous, together about 1.8 mm long; corolla white, neither thick nor thin in texture, the tube glabrous, not much dilated towards throat, about 4 mm long, hairy within, the lobes linear-oblong, about the same length as tube, reflexed at anthesis; anthers of thrums about 1 mm long, exerted 2 mm beyond throat; stigmas of thrums less than 0.3 mm long. Mature fruit red, pyrenes unavailable for study.

Distinguishing Features. Stipules glabrous, small, less than 5 mm long, apex round, not cleft; inflorescence sessile, compact without bracts or bracteoles; fruit red when ripe.

Remarks. This species is probably closely related to *P. phaeochlamysoides*, sp. nov.; it is distinguishable from the latter by the smaller flowers and coriaceous leaves. It is known only from the type collection and is named after John Kairo, one of the collectors.

Psychotria kajewskii Merrill & Perry, J. Arnold Arbor. 27: 210 (1946). Fig. 55.—
Type: *Kajewskii* 1707 (A, holotype; SING, isotype), PNG: NORTH SOLOMONS PROV: Bougainville I: Kupei Gold Field, in rain forest at 1,000 m, 14 Apr 1930.

Trees 5-7(-15?) m high. Stipules valvate, glabrous, ovate-acute, to 3 cm long, apex acute-acuminate, apparently not cleft. Leaves with robust petioles 1.8-5 cm long; blades coriaceous, glabrous, oblanceolate-elliptic, 4.2 × 14-9.5 × 21 cm, lateral veins 11-17 per side, apex short, abrupt-acuminate, base acuminate to attenuate. Inflorescence with 1 robust main axis branching at base from 2-4 closely appressed nodes, the branches opposite and terminating in 1 or 2 cymules, the basal branches often appearing verticillate due to the short internodes. Flowers 5-merous, dimorphic, on short pedicels; calyx and hypanthium about 2 mm long, summit truncate or round, not lobed; corolla white, very thin in texture, the tube glabrous within, gradually dilated towards the summit, about 1.8 cm long, the lobes ovate-oblong, 3-5 mm long, probably reflexed at anthesis; anthers about 2 mm long, basifixed, exerted beyond tube at anthesis in thrums; pistil with style and stigma included in thrums. Fruit red at maturity, smooth and leathery, globose, 10-12 mm long. Pyrenes with 1-3 sharp ridges on back, endosperm prominently ruminant.

Other Specimens Examined. PNG. NS: Buin S.P.: ridge above Kupei, Cole 122 (LAE); Kieta S.P.: tract to Lake Loloru, Lavarack & Ridsdale NGF

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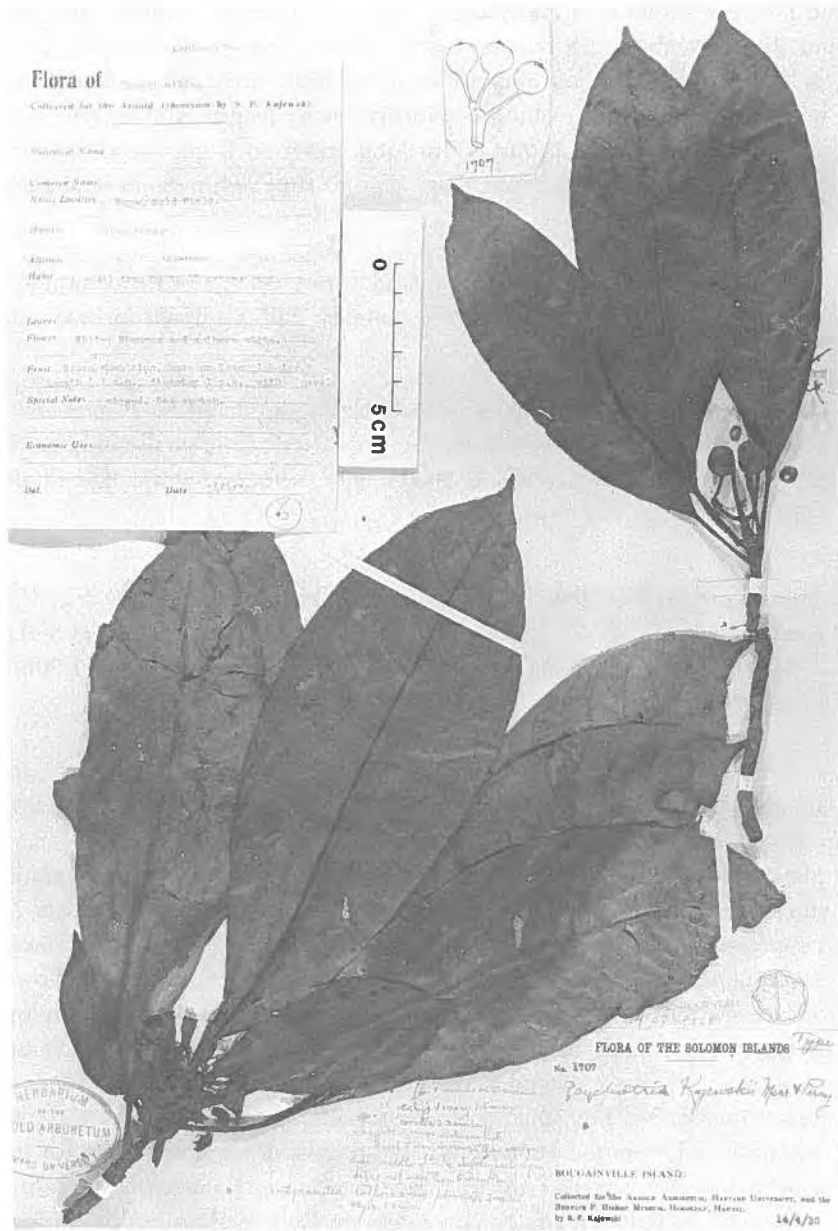


Fig. 55. *Psychotria kajewskii*. Kajewskii 1707 (A, holotype).

31470 (BO, CANB, LAE, SING); mts nr Bokarkani, *Ridsdale & Lavarack* NGF
31568 (CANB, LAE). SI: Kolombangara I, *Whitmore BSIP 2143* (LAE).

Distribution. Found principally on Bougainville between 800 and 1,000 m in lower montane forest. It must be distributed through the Solomon Islands for it has also been collected on Kolombangara at ca. 800 m.

Distinguishing Features. Leaf blade large, 14–21 cm long; flowers large, corolla tube very thin in texture, glabrous within, not hairy, about 1.8 cm long; fruit globose, leathery in appearance, smooth; pyrenes with 1–3 sharp ridges on back.

Remarks. This unusual species is restricted to the Solomon Islands. The globular fruit in conjunction with the inflorescence morphology, flower size, and pyrene structure separate it from all other *Psychotria*. The type collection was reported to have been made from a tree “up to 15 metres high.” I doubt the tree was this tall and suspect the unit of measurement meant was feet, not meters.

Psychotria kaniensis Valetton, Bot. Jahrb. 61: 85 (1927). Fig. 56.—Type: *Schlechter 16717* (K, lectotype, here designated; BM, C, K, L, LAE, S, isolectotypes), PNG: “Kaiser-Wilhelmsland: Strauch in den Wäldern des Kani-Gebirges,” in what is probably now Panebo in Madang Prov, at 1,000 m, 18 Oct 1907.

Shrub; stipules valvate, membranaceous to chartaceous, to 2.5 cm long, apex cleft. Leaves with petioles 1–3 cm long; blades chartaceous, glabrous, elliptic-oblongate, 4 × 12–5.5 × 16.5 cm, primary veins 15–18 per side. Inflorescence compact, at anthesis 1.5–2 cm long, spreading a bit in fruit. Flowers 5-merous, dimorphic(?), glabrous, on very short pedicels; hypanthium about 1 mm long; calyx about 0.75 mm long, lobes minute, acute; corolla white, tube about 3 mm long, lobes subulate-ovate, about 2.5 mm long. Fruit color unknown (white hypothesized), ellipsoid, about 10 mm long, crowned with the persistent calyx. Pyrenes without clearly defined ridges although surface considerably wrinkled, endosperm ruminant.

Distribution. Known only from the type locality.

Remarks. The 15–18 lateral veins per side, the fact that secondaries join each other firmly before they reach the margin to form a submarginal costa of sorts, and the capitate inflorescence have prevented me from expanding the

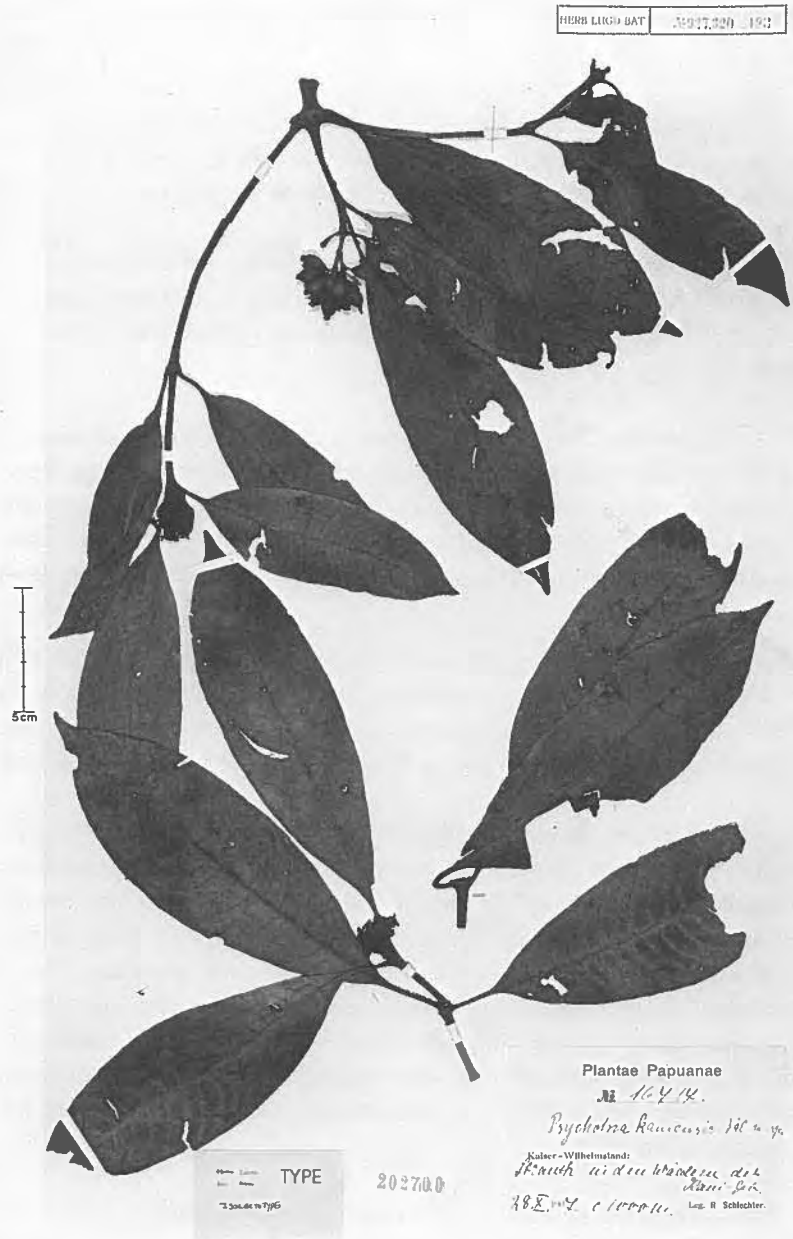


Fig. 56. *Psychotria kaniensis*. Schlechter 16717 (L, isolectotype).

concept of this species to include those specimens cited under *P. multcostata* Valetton.

Psychotria karemaensis Sohmer, sp. nov. Fig. 57.—Type: *Schodde 2550* (LAE, holotype; CANB, K, L, isotypes), PNG: CENTRAL PROV: National Capital Dist: 4 mi [6.4 km] E of Kerema, in primary lowland swamp forest from a tree ca. 5 m tall, at 15–20 m, 12 Jul 1962.

Arbores vel frutices 3–5 m alti glabri sunt stipulis valvatis ad 0.5 cm longis ovatis extra glabris in apice fassis, petiolis 0.6–2.4 cm longis, laminis $2 \times 8-6 \times 15.5$ cm chartaceis glabris anguste ellipticis varie ellipticis apice basique acuminatis nervis lateralibus 8–12 in dimidio quoque, inflorescentia subdelicata saepe laxa glabra 10–14 cm longa axi principali per partem $\frac{1}{3}$ – $\frac{1}{2}$ basalem eramosai nodis primariis cum ramulis oppositis pauce floriferis, floribus 5-meris dimorphicis(?) glabris calyce et hypanthio 1 mm longis, corollis albis tubo 2 mm longo intra piloso, lobis 1 mm longis ovatis, fructibus ellipsoideis albis 7 mm longis 3.5 mm diametro, pyrenis in dorso cum 3 costis prominentibus, endospermo non ruminato.

Small trees or shrubs 3–5 m tall, glabrous. Stipules valvate, glabrous without, ovate, to 0.5 cm long, apex cleft. Leaves with petioles 0.6–2.4 cm long; blades chartaceous, glabrous, narrow elliptic to elliptic, $2 \times 8-6 \times 15.5$ cm, lateral veins 8–12 per side, apex and base acuminate. Inflorescence somewhat delicate, often lax, glabrous, 10–14 cm long, main axis unbranched $\frac{1}{3}$ – $\frac{1}{2}$ its length from base, 4 or 5 primary nodes with opposite branching at each, sparsely flowered. Flowers 5-merous, dimorphic(?), glabrous; calyx and hypanthium about 1 mm long; corolla white, tube about 2 mm long, hairy within, lobes ovate, about 1 mm long. Fruit white when ripe, ellipsoid, about 7 mm long and $\frac{1}{2}$ as wide. Pyrenes with 3 prominent ribs on back, endosperm not ruminated.

Other Specimens Examined. PNG. G: middle Tauri Riv, *Craven & Schodde 1015* (CANB, K, LAE). Ce: W of Karema, *Schodde 2591* (BO, CANB, K, LAE, PNH); *Veiya, Carr 11627* (L, SING).

Distribution. Lowland alluvial rain forests of Papua below 100 m.

Distinguishing Features. Leaves narrow-elliptic; inflorescence few-flowered, with widely spaced internodes; fruit narrow-ellipsoid, pyrenes with 3–5 prominent ribs.

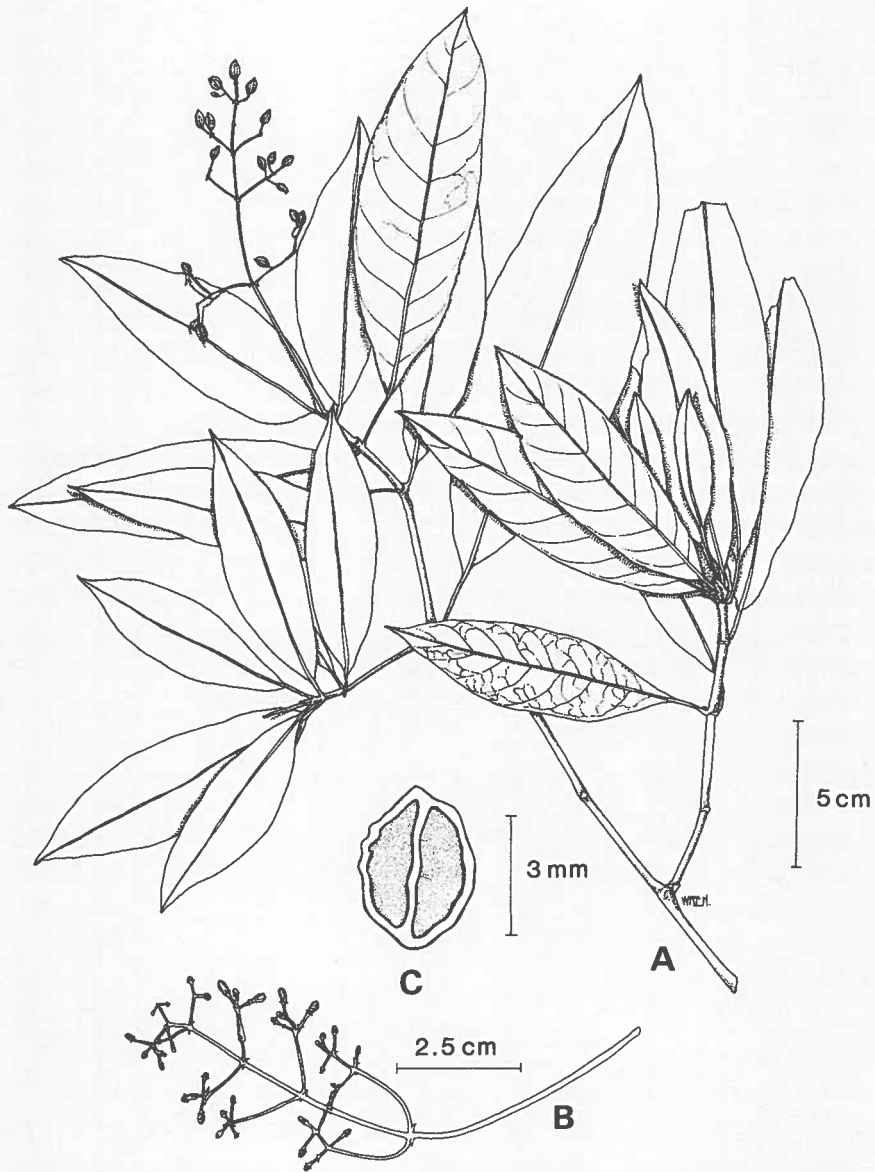


Fig. 57. *Psychotria karemaensis*. Schodde 2550 (LAE, holotype): A, habit with fruiting branch; B, inflorescence with flower buds; C, fruit x.s. with homogeneous endosperm.

Remarks. *Psychotria karemaensis* is closely related to *P. decorifolia* from which it can be distinguished by its petiolate leaves and by the fact that the stipules here, though cleft, do not have aristate lobes as in *P. decorifolia*.

Psychotria katikii Sohmer, sp. nov. Fig. 58.—Type: *Katik* NGF 46702 (LAE, holotype; CANB, K, L, isotypes), PNG: WEST SEPIK PROV: Vanimo Dist: nr Ossima Airstrip, at the edge of the rain forest from a tree ca. 5 m tall with a bole of ca. 3 cm, at 140 m, 27 Jun 1970.

Arbores 3–7 m altae sunt, novellis glabri stipulis valvatis usque ad 2 cm longis obovatis subtilibus submembranaceis in apice conspicue fissis marginibus saepe ciliatis, petiolis plerumque 2–6 cm longis, laminis plerumque 7×14 – 13×27 cm late obovatis varie ellipticis chartaceis vel coriaceis basi attenuata vel acuminata apice rotundata vel obtusa (rare acuminato) glabris vel interdum infra paulum pubescentibus nervis lateralibus 15–22 in dimidio quoque, inflorescentia robusta plerumque alba et conspicua vulgo folia excedentibus axi principali simplicii per partem $\frac{1}{2}$ – $\frac{3}{4}$ ex basi tam cum 3–5 nodis primariis cum ramulis oppositis vel verticillatis ramulis ultra 8 cm ramosis axibus plerumque pubescentibus vel dumtaxat puberulis, ramulis in cymis late dispersis terminantibus, floribus 5-meris (vel 6-meris?) sessilibus vel in flore cum pedicellis minutis, hypanthio et calyce 1–2 mm longo lobis minutis obrutis, corollis albis tubo 3 mm longo intra piloso lobis 1–1.2 mm longis ovato-subulatis, antheris 1 mm longis, stylo in floribus pinaceis ultra 4 mm longo, fructibus 4 mm longis turbinato-globosis, pyrenis cum dorso laevi, endospermo ruminato.

Small trees 3–7 m tall; young twigs glabrous. Stipules valvate, thin, nearly membranaceous, broadly obovate, to 2 cm long, apex prominently cleft, margins often ciliate. Leaves with petioles mostly 2–6 cm long; blades chartaceous or coriaceous, glabrous to somewhat pubescent below, broadly obovate to elliptic, 7×14 – 13×27 cm, lateral veins 15–22 per side, apex round or obtuse or, rarely, acuminate, base attenuate or acuminate. Inflorescence robust, usually white and conspicuous, usually longer than the leaves, the main axis unbranched $\frac{1}{2}$ – $\frac{3}{4}$ of length from base, 3–5 primary nodes with opposite or verticillate branching at each, the lateral branches as much as 8 cm long before branching themselves, ultimate branches terminating in widely spreading cymules, axes usually pubescent or at least puberulent. Flowers 5-merous (6-merous also?), dimorphic (?), glabrous, sessile or on minute pedicels at anthesis; hypanthium and calyx together 1–2 mm long, lobes minute, obtuse; corolla white, tube about 3 mm long, hairy within, lobes ovate-subulate, 1–1.2 mm long; anthers about 1 mm long; pistil with style over 4 mm long in pin flowers. Fruit white, turbinate-globose, about 4 mm long; pyrenes without prominent ridges on outer surface, endosperm ruminant.

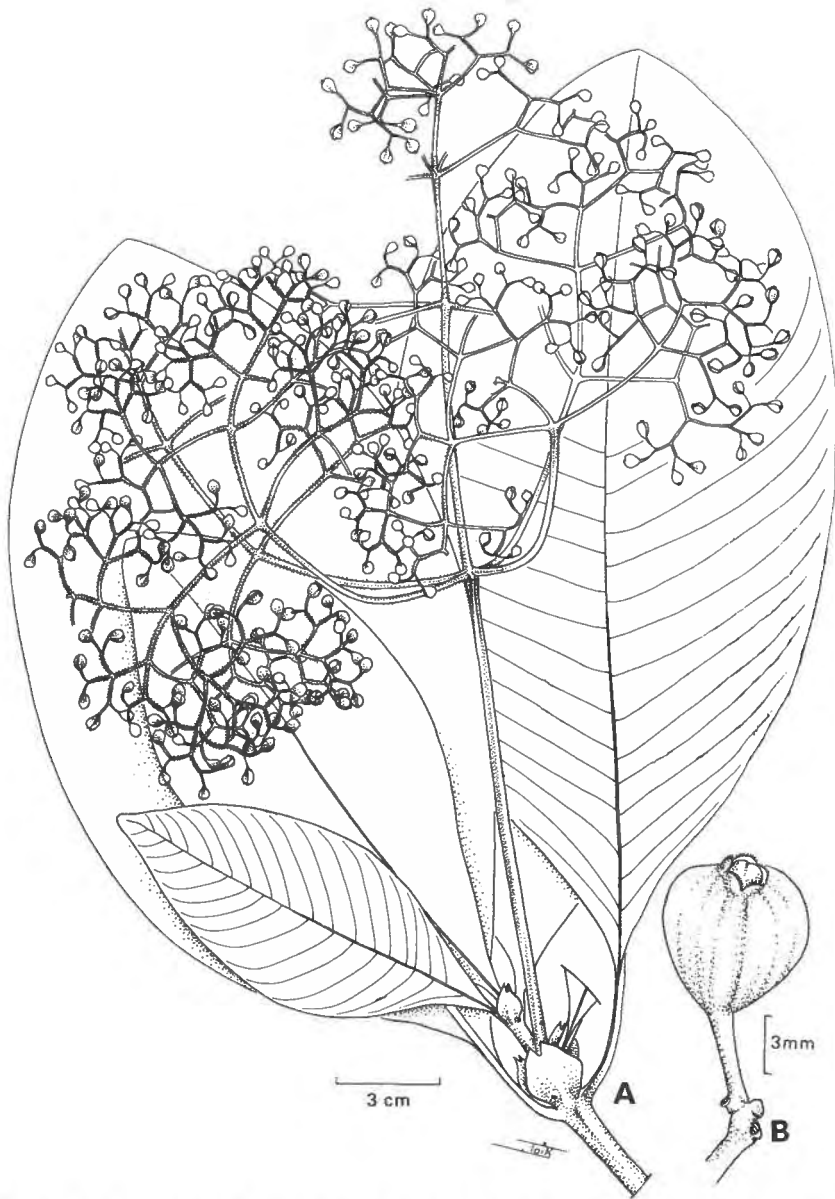


Fig. 58. *Psychotria katikii*. Katik NGF 46702 (LAE, holotype): A, habit of fruiting branch; B, fruit.

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Other Specimens Examined. IJ. Van Rees Mts, Van Gelder Riv, *Doctors van Leeuwen* 9237 (BO, K, L); Cyclops Mts, *van Royen & Sleumer* 5692 (BO, LAE). PNG. WS: btwn Mafoka & Mori, *Darbyshire & Hoogland* 8081 (BO, CANB, LAE); N of Kilifas, *Foreman & Kumul* NGF 48309 (CANB, LAE); Osima Vill, *Sayers* NGF 13220 (CANB, LAE). MB: Mayu, *Stevens & Veldkamp* LAE 54346 (K, L, LAE).

Distribution. A small tree of disturbed forest situations found from 30 to 400 m at the forest edge, in regrowth, and along tracks.

Distinguishing Features. Leaf blades broadly obovate or elliptic with round or obtuse apices; inflorescence white at anthesis and usually longer than subtending leaves.

Remarks. This species resembles *P. direpta* but for the cleft stipules, longer corolla tube, and generally glabrous condition. The broad, round apices on the leaf blades circumscribe this species well when considered with the other significant characters. It fits *P. direpta* very well and, were it not for the cleft nature of the stipules I have seen on the specimens examined here (entire stipules on the *P. direpta* specimens examined), I would not have recognized this taxon as a separate entity.

Psychotria kelelensis Valetton, Bot. Jahrb. 61: 86 (1927). Fig. 59.—Type: *Schlechter* 16465 (S, lectotype, here designated; A, BM, C, K, L, S, isolectotypes), PNG: "Kaiser Wilhelmsland in dem Wäldern von Kelel."

Small tree to 3 m tall, completely glabrous. Stipules valvate, narrowly ovate, apex acute (not cleft), thick mucilaginous material secreted from within prior to opening. Leaves with petioles 0.8–1.5(–2.5) cm long; blades fleshy, stiffly coriaceous, smooth and glossy, ovate-elliptic, 2.5 × 7–7 × 18 cm, lateral veins 10–15 per side, depressed above and prominent below, apex acuminate-attenuate, base acute-obtuse. Inflorescence $\frac{1}{2}$ or less as long as subtending leaves, 5–6 cm long, 1 main axis unbranched $\frac{1}{4}$ – $\frac{1}{3}$ its length from base, 3–5 primary nodes with opposite branching at each, the lateral branches small and glabrous. Flowers 5-merous, dimorphic, glabrous; calyx and hypanthium less than 1 mm long; corolla white, tube less than 1 mm long, glabrous without, profusely villous within at throat, lobes ovate-subulate, about 2 mm long, rotate at anthesis; anthers about 0.5 mm long in thrum flowers. Fruit becoming white and succulent at full maturity, obpyramidal-obovoid, 4–4.5 mm long. Pyrenes without ribs on back, endosperm ruminant.

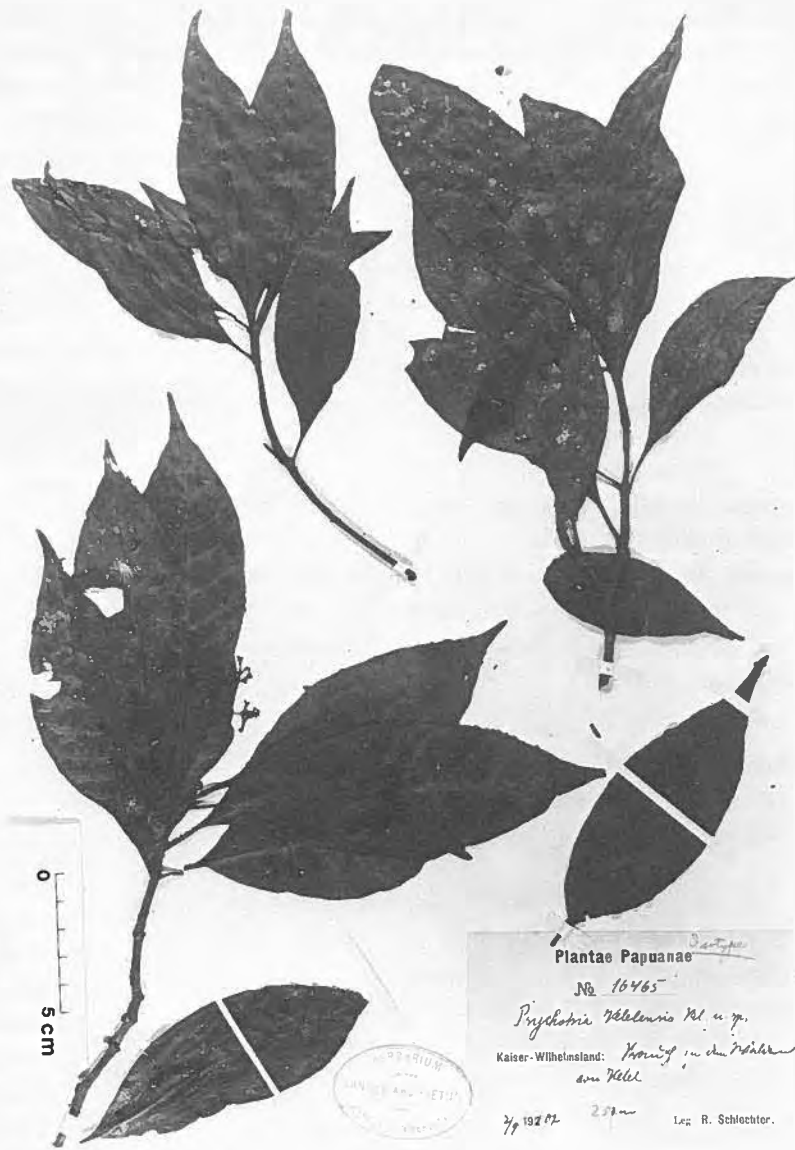


Fig. 59. *Psychotria kelelensis*. Schlechter 16465 (A, isolectotype).

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Other Specimens Examined. PNG. M: Gogol Riv, *Lauterbach 1114* (WRSL), *Sohmer & Katik LAE 75169* (BISH, BO, L, LAE). Mo: Gurakor logging rd, *Vinas & Laravita LAE 62227* (BISH, K, LAE). N: Musa Basin, SW of Safia, *Paijmans 97* (CANB); Managalase area, nr Siurane Vill, *Pullen 5609* (CANB). PNG. "Stephansort," without further data, *Nymann 167* (S).

Distribution. Low elevation rain forests in the northern part of PNG.

Distinguishing Features. Leaf blades fleshy in vitro, coriaceous, ovate-lanceolate, very prominent venation, base acute-obtuse; inflorescence shorter than the leaves; corolla lobes 2 × length of tube.

Remarks. This species is distinguished by fleshy, coriaceous ovate-elliptic leaves with prominent venation, a small inflorescence with flowers in which the corolla lobes are nearly twice as long as the tube, and white fruit that is succulent at maturity. It is not a common taxon and is found in relatively undisturbed, moist tropical rain forest at low elevations. The handwriting on the label of the *Lauterbach 1114* specimen annotating it as *P. insularum* may be that of Karl Schumann. Unlike *P. micrococca*, to which this could be related, the fruit mature all at once, not a few at a time. It was only after I had been able to study a number of the type duplicates, especially the one from S, that I was able to make the connection between this Valetton species and a taxon I recognized from my own collecting in Madang Province. I have designated the sheet from S as lectotype.

Psychotria leiophloea Merrill & Perry, J. Arnold Arbor. 27: 204 (1946). Fig. 60.— Type: *Brass 8506* (A, holotype; BM, BO, K, L, isotypes), PNG: WESTERN PROV: Tarara: Wassi Kussa Riv, in rain forest, from a tree 6–7 m tall, Dec 1936.

Small trees 2–12 m tall. Stipules valvate, smooth, stiff, broadly ovate to somewhat obovate, to 1 cm long, apex round or obtuse (not cleft). Leaves with petioles 1.5–3(–5.5?) cm long; blades coriaceous or semicoriaceous, glabrous, broadly elliptic to elliptic, 5 × 11–11 × 21 cm, lateral veins generally 10–12 per side, apex and base acute or obtuse. Inflorescence white at anthesis, about the same length as leaves or shorter, robust, main axis unbranched $\frac{1}{2}$ – $\frac{2}{3}$ from base, or 2 small laterals from base, primary nodes usually 1 or 2, branching verticillate, usually, at each, secondaries unbranched $\frac{2}{3}$ their length, and, when branched, profusely so, the ultimate branches bearing tight groups of cymules, with several

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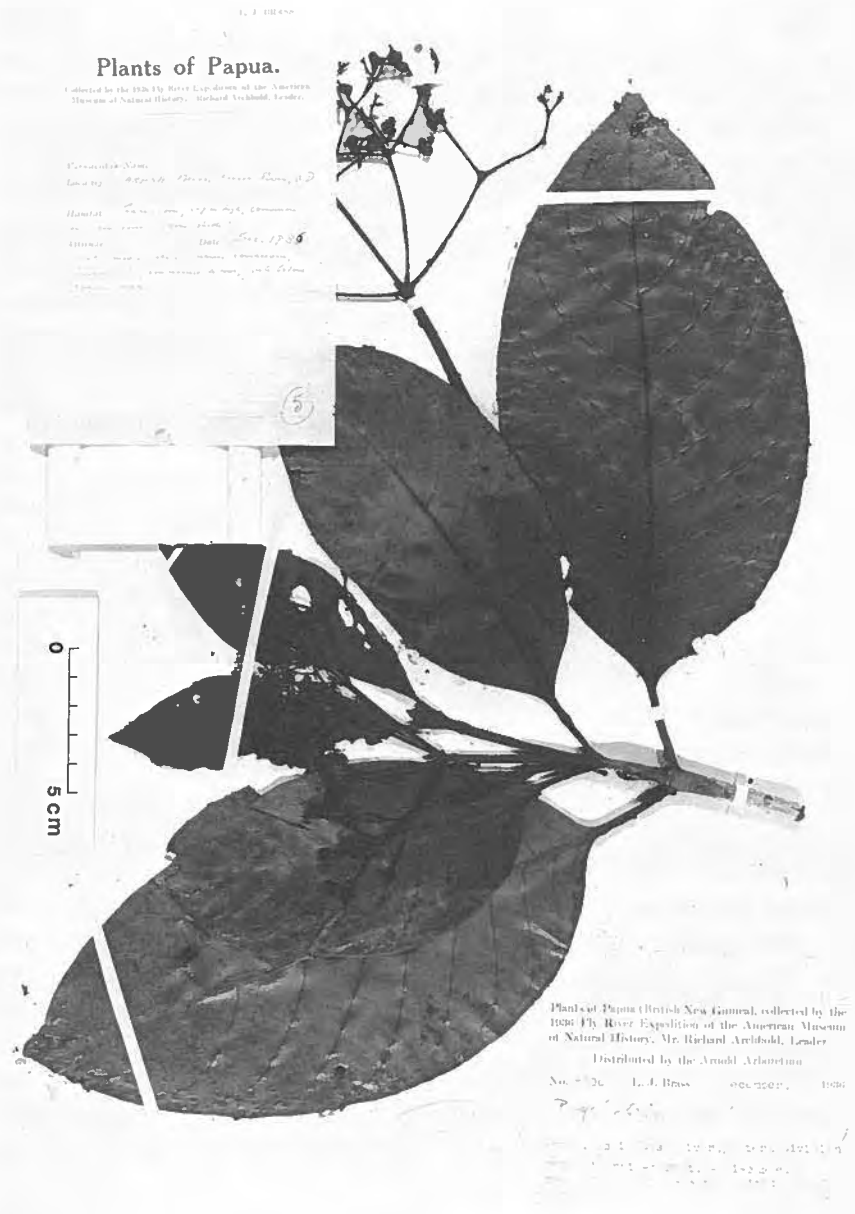


Fig. 60. *Psychotria leiophloea*. Brass 8506 (A, holotype).

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sessile flowers, puberulent or pubescent throughout. Flowers 5-merous, dimorphic(?), sessile; hypanthium and calyx together about 1.5 mm long, pubescent, nearly truncate on top, lobes minute; corolla white, tube salverform, about 3 mm long, hairy within, lobes subulate, 1.5-2 mm long; anthers about 0.6 mm long, exerted in thrum flowers about 2 mm beyond throat of corolla tube; style of thrum flowers less than 2 mm long. Fruit red when ripe, obovoid-globose, 4-5 mm long. Pyrenes with several broad ridges on back, endosperm slightly ruminant.

Other Specimens Examined. IJ: Kota Baroe, *McKee* 1937 (K, LAE). PNG. ES: Wewak-Angoram area, *Robbins* 2544 (CANB), *Pullen* 1404 (CANB); Mo: nr Butibum Riv, *Hartley* 10240 (C, CANB, K, L, LAE). N: Kumusi Riv, Asisi Vill, *Wiakabu & Masaphuafo* LAE 70259 (BISH, BO, LAE); nr Koreaf Vill, *Hoogland* 4785 (A, L, LAE); N of Saino, *Hoogland & McDonald* 3493 (CANB, L, LAE); 1 km W of Horata Vill, *Hoogland* 3553 (CANB, L, LAE). EH: Arau, *Brass* 32208 (K, L, NY). W: Oriomo Riv, *Brass* 5899 (A, BO), *White & Gray* NGF 10380 (BO, K, LAE); Ok Tedi head waters, *Henty et al.* NGF 42789 (CANB, LAE); Mt Bosavi, *Jacobs* 9304 (BISH, BO, LAE), 9525 (BISH, BO, LAE). G: Vailala Riv, Ihu hill, *Schodde & Craven* 4247 (CANB, K, LAE). Ce: Brown Riv, *Edowes & Kumul* NGF 13119 (BO, LAE, UPNG); Mumu Vill, *Isles & Vinas* NGF 32432 (LAE). MB: Normanby I, *Brass* 25389 (K, L, LAE, PNH, S); Fergusson I, *Brass* 27221 (LAE, PNH, S), *Croft et al.* LAE 68800 (LAE). NI: Dyaul, *Koie* 1849 (L).

Distribution. Apparently common in dryer lowland coastal forests from sea level to 900 m elevation (most found below 200 m).

Distinguishing Features. Stipules round at apex; leaf blades with veins prominent beneath; inflorescence often white at anthesis, terminal branches with clusters of flowers subtended by bracts, the oldest flower sessile, often developed already into a fruit while 2-3 other, younger, flowers are initiated from below it; fruit red when ripe.

Remarks. The clusters of sessile flowers at the ends of the inflorescence branches become the globose, sessile, red fruits that distinguish this taxon from others with panicles white at anthesis.

Apparently the *P. micrococca* and *P. ramulosa* complexes, both of which have white fruit, are not the only *Psychotria* species to evolve showy, white panicles at anthesis. I suspect that 1 or 2 of the specimens referred here may belong elsewhere, for the species is highly variable.

Psychotria leleana Sohmer, sp. nov. Fig. 61.—Type: *Sohmer et al.* LAE 75377 (LAE, holotype and isotype), PNG: WEST NEW BRITAIN PROV: Talasea Dist: Garu Wildlife Management Area: W slopes of Mt Gabuna, in lowland rain forest at 250 m, 23 May 1979.

Arbor 2–8 m alta est, stipulis calyptratis usque ad 2.5 cm longis glabris saepe in apice curvatis novellis versimiliter ex apice protrusis, petiolis 0.8–2.5 cm longis, laminis $(2.5 \times 6.5)5 \times 10.5$ – 9×22 cm chartaceis vel subtiliter coriaceis glabris ellipticis elliptico-oblongatis vel elliptico-lanceolatis basi acuta rare obtusa nervis lateralibus 10–16 in dimidio quoque, inflorescentia spicata axi principali, solitario per 1–4 cm ex basi eramoso ramis principalibus 1–4 remotis et cum bracteis 1×2 mm ovatis in jugis marginibus ciliatis eis sursum ramis congregatis omnibus 1–3 floribus sessilibus sustentibus axibus pubescentibus, floribus 4- vel 5-meris dimorphicis sessilibus glabris, hypanthio et calyce 1.5 mm longis lobis minutis, corollis albis tubo 1 mm longo intra piloso lobis 2–2.2 mm longis in flore reflexis, antheris dorsifixis 0.5 mm longis, stigmatibus 0.5 mm longis, fructibus 9–10 mm longis obovoideis rubris, pyrenis in dorso cum 1–3 liris irregularibus, endospermo ruminato.

Small trees 2–8 m high. Stipules calyptrate, reddish in color in the field, glabrous, to 2.5 cm long, often curved at the tip, young plant parts probably emerging through the top. Leaves with petioles 0.8–2.5 cm; blades chartaceous to thin-coriaceous, glabrous, elliptic to elliptic-oblongate or elliptic-lanceolate, (2.5×6.5) – 5×10.5 – 9×22 (– 11×20) cm, lateral veins 10–16 per side, apex acuminate, base acuminate, acute to infrequently obtuse. Inflorescence spicate, 1 main axis (peduncle), unbranched for 1–4 cm from base and flattened, and with 1–4 pairs of widely spaced primary branches, the branches with pairs of ovate bracts, 1×2 mm, ciliate on margins, closely spaced along branches, each bract subtending 1–3 sessile flowers, all axes often pubescent. Flowers 4- or 5-merous, dimorphic, glabrous, sessile; hypanthium and calyx together about 1.5 mm long, lobes minute at summit; corolla white, thin in texture, the tube about 1 mm long, hairy within, the lobes 2–2.2 mm long, reflexed at anthesis; anthers dorsifixed, about 0.5 mm long; stigmas about 0.5 mm long in pin flowers. Fruit red when ripe, obovoid, 9–10 mm long. Pyrenes with 1–3 irregular ridges on back, endosperm prominently ruminant.

Other Specimens Examined. PNG. Ma: nr Bundrahei, *Foreman & Katik* LAE 59186 (LAE); Lou I, *Sands et al.* SAND 2982 (CANB, L); Mbuke I, *Sands et al.* SAND 2965 (CANB, L). WNB: Mt Talawe, *Frodin* NGF 26832 (LAE), *Ridsdale* NGF 30529 (K, LAE); Mt Tingis, *Frodin* NGF 26295 (BO, L, LAE, SING), NGF 26912 (LAE); SE of Benim Vill, *Henty & Frodin* NGF 27411

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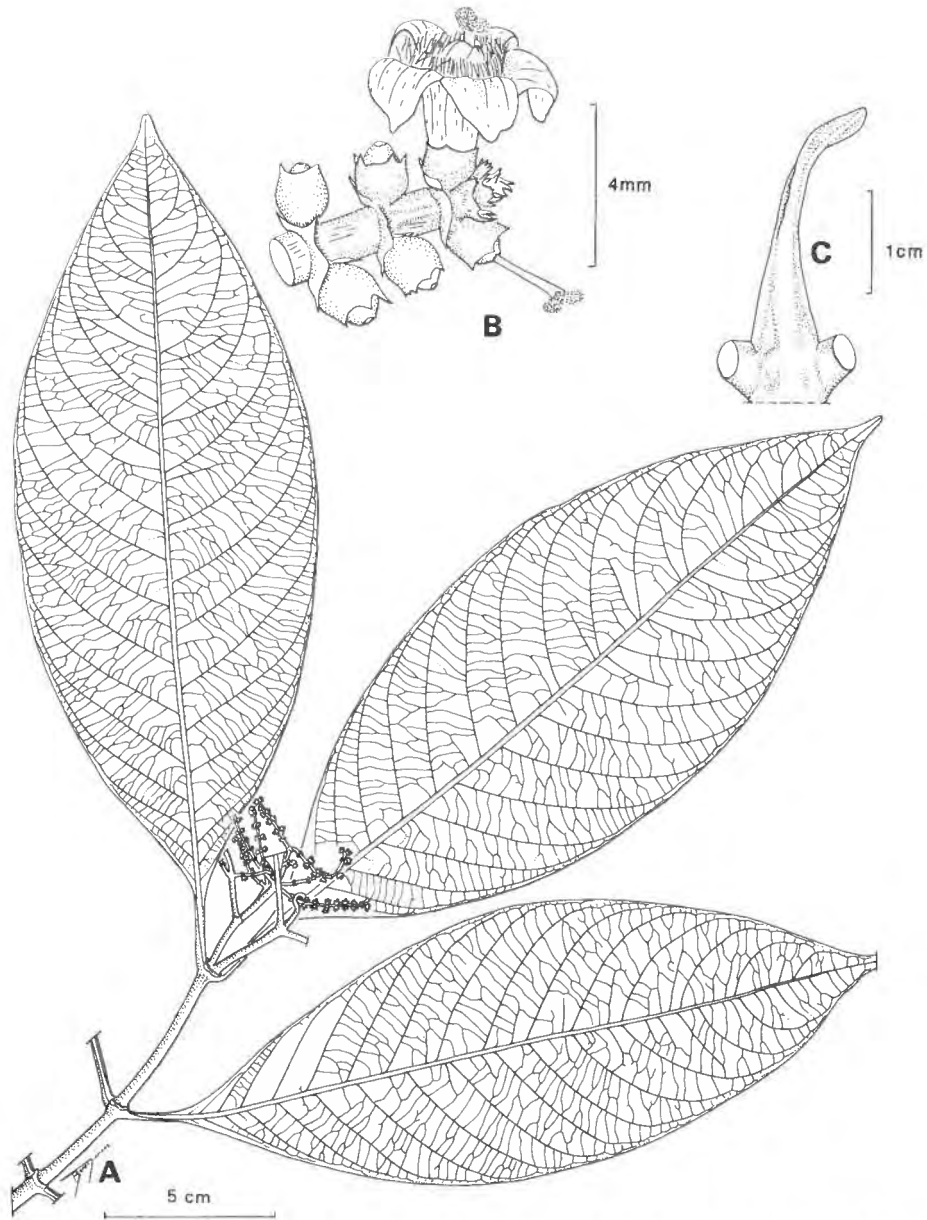


Fig. 61. *Psychotria leleana*. Sohmer et al. LAE 75377 (LAE, holotype): A, habit of flowering branch; B, portion of inflorescence; C, stipule.

(BO, LAE); W of Pulie Riv, *Henty* NGF 27202 (BO, LAE); Mt Gabuna, *Sohmer et al.* LAE 75378 (LAE); Nantambu, *Isles & Vinas* NGF 32370 (BISH, K, LAE), *Stevens* LAE 58461 (BISH, K, LAE); nr Urin, *White* NGF 10088 (BO, L). ENB: Fullerborn Harbor, *Clunie & Whitmore* LAE 63056 (K, LAE), *Croft & Isles* NGF 12952 (CANB, LAE), *Sayers* NGF 21785 (BO, CANB, L, LAE, SING), NGF 21883 (LAE), *Stevens et al.* LAE 58336 (K, LAE); Mt Lululua, *Stevens & Lelean* LAE 58233 (K, LAE), LAE 58237 (BISH, CANB, K, LAE), LAE 58254 (LAE); Mengen Massif, *Stevens & Lelean* LAE 58674 (BISH, K, LAE, PNH).

Distribution. Lowland rain forests or montane forests from sea level to 1,100 m on Manus and New Britain.

Distinguishing Features. Inflorescence spicate, sessile flowers subtended by broadly ovate bracts; flowers small, corolla tube only 1 mm long, the lobes about 2 × as long; pyrenes with broad, flat tail or foot, endosperm prominently ruminant.

Remarks. The spicate inflorescence and sessile flowers in the axils of paired, broadly ovate bracts make this a most unusual species. It is closely related to *P. leleanoides*, sp. nov., and less so to *P. dipteropoda* and *P. dipteropodioides*. It is delimited from the 1st by its sessile flowers and inflorescence with 1 main axis, and from the latter 2 by its smaller leaves and generally glabrous inflorescence (leaf blades over 14 cm long and inflorescence densely pubescent in *P. dipteropodioides*).

The species has been named after Mr. Yakas Lelean, a long-time technician at the Division of Botany, Office of Forests, who has aided many botanists in the field and directly contributed to the holdings of the herbarium at Lae.

Psychotria leleanoides Sohmer, sp. nov. Fig. 62.—Type: *Stevens & Lelean* LAE 58659 (LAE, holotype and isotype; BISH, K, L, PNH, isotypes), PNG: EAST NEW BRITAIN PROV: Pomio Dist: edge of Mengen Massif, in “*Castanopsis* dominated forest” at 885 m, 8 Jun 1973.

Arbores 3–10 m altae sunt, stipulis calyptratis angustis usque ad 2 cm longis, novellis versimiliter ex apice protrusis, petiolis 0.6–2 cm longis, laminis 2.6 × 6.2–5.3 × 10 cm chartaceis vel subtiliter coriaceis glabris ellipticis obovato-vel oblanceolato-ellipticis acuminatis basi acuta vel acuminata nervis lateralibus 10–14 in dimidio quoque, inflorescentia cum axis tribus aequalibus omnibus cum nodis propinquis eis cum bracteis jugatis parvis triangularibus 1–5(–10) floribus

SOHMER: NEW GUINEA AREA PSYCHOTRIA



Fig. 62. *Psychotria leleanoides*. Stevens & Lelean LAE 58659 (LAE, holotype): habit.

pedicellatis sustentibus, floribus 4- vel 5-meris dimorphicis, hypanthio et calyce minus quam 1 mm longis lobis calyces minutis acuminatis, corollis albis subtilibus tubo 3.5–4 mm longo paulum distento in fauce pilosissimo, lobis ovato-subulatis usque ad 2 mm longis, antheris 0.7–0.8 mm longis basifixatis, stigmatibus in floribus pinaceis porro 1 mm longis, fructibus 9 mm longis obovoideis rubris, pyrenis in dorso cum cortis irregularibus vel liris, endospermo ruminato.

Trees 3–10 m high. Stipules calyptrate, narrow, to 2 cm long, young parts probably emerging via the top. Leaves with petioles 0.6–2 cm long; blades 2.6 × 6.2–5.3 × 10 cm, chartaceous to thinly coriaceous, glabrous, elliptic to obovate or oblanceolate-elliptic, lateral veins 10–14 per side, apex acuminate, base acute to acuminate. Inflorescence with 3 equal axes from base, each axis bearing pairs of small triangular bracts on closely spaced nodes, each bract subtending 1–5 (–10) pedicellate flowers. Flowers 4- or 5-merous, dimorphic, pedicellate; hypanthium and calyx together no more than 1 mm long, lobes minute, acuminate; corolla white, thin in texture, the tube 3.5–4 mm long, not much dilated, very hairy within at throat only, the lobes ovate-subulate, to 2 mm long; anthers 0.7–0.8 mm long, basifixated; stigmas nearly 1 mm long in pin flowers. Fruit red when ripe, obovoid, about 9 mm long. Pyrenes corrugated on back with irregular ribs or ridges, endosperm ruminant.

Other Specimens Examined. PNG. ENB: Open Bay, Rau 349 (K, L, LAE). NS: Buin S.P.: Tonolei, Coode *et al.* NGF 40390 (CANB, LAE); Tonolei Harbor, Foreman NGF 45638 (CANB, LAE), NGF 45648 (CANB, LAE), Sayers NGF 19691 (CANB, LAE, SING). SI: Lodumae, Ben *et al.* BSIP 19095 (LAE); S Choiseul I, Gafui *et al.* BSIP 18326 (LAE); S Vella Lavella, Kotali *et al.* BSIP 11326 (LAE); E Shortland Is, Mauriasi *et al.* BSIP 13238 (LAE); E of Ovau I, Mauriasi *et al.* BSIP 13348 (LAE); Oema I, Mauriasi *et al.* BSIP 13768 (LAE); Baga I, Whitmore BSIP 1312 (LAE), Whitmore's collectors BSIP 3078 (LAE); Gizo I, Mauriasi *et al.* BSIP 11692 (LAE), Whitmore's collectors BSIP 5648 (LAE); Kolombangara I, Mauriasi *et al.* BSIP 8812 (LAE), BSIP 9781 (LAE), Whitmore BSIP 1508 (LAE).

Distribution. Lowland rain forest from sea level to 885 m. Primarily occurring below 200 m on New Britain and the Solomon Islands.

Distinguishing Features. Inflorescence spicate, trichotomous from base, with small, triangular pairs of bracts at closely spaced nodes along axes, each one subtending 1–5 (–10) pedicellate flowers; corolla tube 3.5–4 mm long; fruit red when ripe, obovoid.

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Remarks. This species is closely related to *P. leleana* from which it can be distinguished by the inflorescence with 3 main axes from point of origin and the pedicellate flowers.

Psychotria leptothyrsa Miquel, Ann. Mus. Bot. Lugd.-Bat. 4: 208 (1868). Figs. 63, 64.—Type: *de Vriese & Teysmann s.n.*, 1859–60 (L, lectotype, here designated), INDONESIA: MOLUCCAS: Ceram.

Psychotria beccarii (Schumann) Schumann, in Schumann & Hollrung, Fl. Kaiser Wilhelmsland, p. 135 (1889).

Hydnophytum beccarii Schumann, Bot. Jahrb. 9: 221 (1888).—Type: *Hollrung 238*, "NEW GUINEA." Not seen, presumed lost.—Neotype: *Lauterbach 1063* (WRSL), PNG: MADANG PROV: Gogol Riv. This specimen was referred by Schumann & Lauterbach [Fl. Deutsch. Schützgeb. Südsee, p. 574 (1901)] to this taxon.

Psychotria salmoneiflora Schumann, in Lauterbach & Schumann, Nachträge, Fl. Deutsch. Schützgeb. Südsee, p. 396 (1905).—Type: *Nyman 832* (WRSL, lectotype, here designated), PNG: MOROBE PROV: Simbang.

Psychotria beccarioides Wernham, J. Bot. (London) 56: 132 (1918).—Type: *Forbes 316* (K, lectotype, here designated; BM, L, isoelectotypes), PNG: CENTRAL PROV: Sogeri Dist: without further data.

?*Grumilea cornifer* Wernham, J. Bot. (London) 56: 134 (1918).—Type: *Forbes 136* (BM, lectotype, here designated; K, isotype), PNG: CENTRAL PROV: Sogeri S.P.: without further data, at ca. 800 m, 20 Oct 1911.

Trees or shrubs 1–10 m high, glabrous; twigs generally light yellow-green in vivo, often drying yellow-green. Stipules valvate in form but fused to each other at base to form a tube, smooth and glabrous, each generally ovate, less than 1 cm long, apex stiff, narrow, short. Leaves with petioles 0.8–4(–6) cm; blades membranaceous, chartaceous to semicoriaceous (in vivo, often fleshy), completely glabrous, obovate, oblanceolate, broadly-elliptic or elliptic, generally 2 × 5–11 × 23.5(–30) cm, lateral veins generally 8–10(6–12) per side, apex round, with tip short, acute or acuminate base acute to obtuse. Inflorescence either sessile (i.e., branching begins at base of main axis) or with a peduncle (unbranched portion of main axis) never more than ½ length of the entire inflorescence, generally very small, inflorescence length 3.5–15 cm long, primary nodes 1–6 generally with verticillate branching at each, the branches generally delicate, lax in flower and fruit, entirely glabrous. Flowers 5- to 6-merous, dimorphic, perfectly smooth and glabrous, on pedicels 5–10 mm long; calyx and hypanthium together about 1–2 mm, lobes very short, round or obtuse; corolla white, pinkish white, or sometimes tinged with yellow-orange, the tube bell-shaped, 5–7 mm long, or tube dilated towards summit, not bell-shaped, usually hairy within, lobes ovate-subulate, 3–

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Fig. 63. *Psychotria leptothyrsa* var. *leptothyrsa*. de Vriese & Teysmann s.n. (L, lectotype).

4 mm long, reflexed at anthesis; anthers of thrums 1–3 mm long, exerted; pistil with style and stigma included in thrums. Fruit red at maturity (when young, green with whitish stripes, rather like a gooseberry), globose, obovoid-globose or elliptic-globose, 6–11 mm long. Pyrenes with 1–3 ridges on back or angular in cross section, endosperm smooth and not ruminant.

I have designated as lectotype the de Vriese & Teysmann specimen that Miquel had in hand when describing what turned out to be a remarkably widespread taxon. Being so widespread it is not surprising that so many variations exist and that many of these have been formally recognized. Valeton's (1908) figure is a good representation of the taxon. As the original type material for *P. beccarii*, a name used for much of the New Guinea material, is not available and presumed destroyed, I have selected a neotype specimen for it. The specimen selected is one of several cited by the original author as "add-ons" 3 years after the original publication of the taxon; I chose 1 of 2 of these that I was able to examine. These conclusions were made possible because I was able to examine the historical collections not destroyed during World War II on loan from WRSL, and *P. leptothyrsa* was illustrated by Valeton (1908). Shortly before his death, Valeton was apparently in the process of revising his concepts of *P. leptothyrsa* and, to judge from an unpublished manuscript that Dr. Colin Ridsdale made available to me, had been planning to recognize 10 varieties of this species ranging from Java to the Bismarck Archipelago. This is probably one of the most wide-ranging *Psychotria* species in Malesia. Much of the Papuan material does not generally have a long-pedunculate inflorescence as do some Java specimens. I am herewith recognizing 3 Papuan varieties, which can be distinguished by the following key:

1. Plants generally trees 2–10 m high; leaf blades 13–23.5(–30) cm long; plants of lowland rain forests rarely occurring above 1,000 m, mostly under 200 m var. *leptothyrsa*
 Plants generally shrubs 1–3 (rarely to 6) m high; leaf blades mostly 5–16 cm long; plants of montane forests above 100 m elevation, most over 2,000 m 2
2. Twigs extremely brittle, easy to snap; plant parts with strong, foetid odor when cut or bruised; leaves and flowers often drying dark grayish green or darker var. *friabilis*
 Twigs not brittle; plant parts without foetid odor; leaves and flowers generally drying green or yellow-green var. *multifurca*

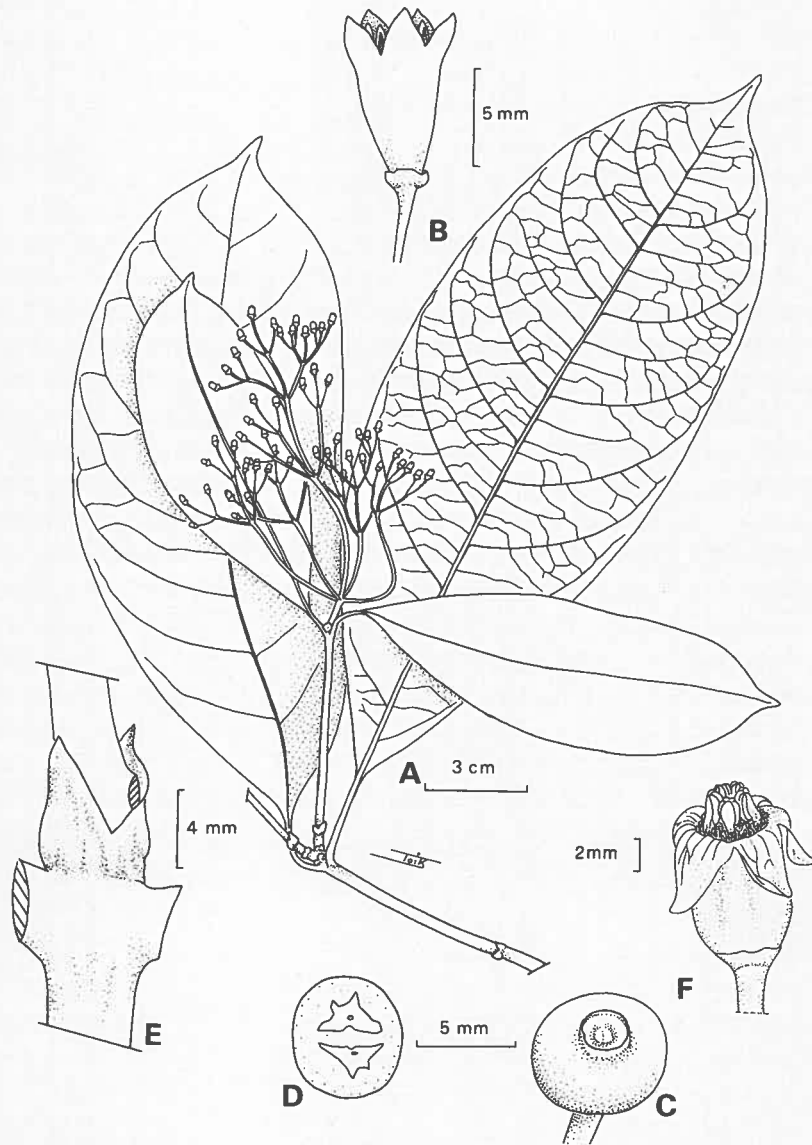


Fig. 64. *Psychotria leptothyrsa* var. *leptothyrsa*. A-E, *Sohmer & Katik* LAE 75178 (LAE): A, habit of flowering branch; B, flower at onset of anthesis; C, fruit; D, fruit x.s.; E, stem apex showing valvate stipules fused below. F, *Sohmer et al.* LAE 75499 (LAE): thrum flower at anthesis.

Psychotria leptothyrsa var. *leptothyrsa*

Trees generally 2–10 m high, occasionally shrubs as small as 1.5 m. Stipules usually between 5 and 10 mm long. Leaves with petioles 1–4(–6) cm; blades membranaceous, chartaceous to semicoriaceous, 5 × 13–11 × 23.5(–30) cm, lateral veins usually 8–10 per side, drying yellow-green. Inflorescence 6–15 cm long, 2–6 primary nodes. Anthers about 1 mm long.

Other Specimens Examined. IJ. Nr Nabire, *Kanehira & Hatusima* 11726 (BO); Meos Waar I, *Kalkman* 3555 (BO, L), *Koster* BW 1224 (BO, CANB, K, L, LAE, PNH, SING); Meos Num I, *Schram* BW 15062 (L, LAE); Biak I: Saridi, *Riekerk* BW 2394 (CANB, L); Manokwari, *Kostermans* 248 (BO); Warsui nr Ransiki, *Kostermans* 2949 (BO, L), *Kostermans* 2960 (BO); Prouvenbivak, *Lam* 787 (BO, L, SING), 795 (BO, K, L); Vogelkop: Aifat Riv Val, *van Royen & Sleumer* 7276 (BO, L, LAE); Wandammen Pen: Wondiwoi Mts, *Schram* BW 10709 (L, LAE); Radjah Ampat: Batanta I, *van Royen* 3515 (BO, L, LAE); Hollandia, Tablasoefoe, *van Royen & Sleumer* 6453 (BO, L); Fak-Fak, Pulau Pandjang, *Vink* BW 12112 (BO, K, L, LAE); Mamberamo Riv, *Lam* 938 (BO, L); Sorong, *Pleyte* 363 (BO, K, L, SING), 395 (BO, L). PNG. WS: Wigote Vill, *Darbyshire* 475 (CANB, K, L, LAE); SE of Kilifas, *Foreman & Kumul* NGF 48353 (CANB, L, LAE); N of Bewani Range, *Wiakabu et al.* LAE 50538 (BISH). ES: nr Wagu, *Hoogland & Craven* 10360 (L, LAE); Wewak–Angoram area, *Pullen* 1452 (CANB, L, LAE), *Robbins* 2177 (CANB); Sepik area, without further data, *Ledermann* 7722 (SING). M: Gogol Val, Sapi catchment, *Chunie et al.* LAE 63519 (BISH, L, LAE, UPNG); Usino, *Henty* NGF 28015 (BO, K, L, LAE, SING); Gogol Riv nr Mawan Vill, *Hoogland* 4930 (CANB, K, L, LAE); Gogol Riv Val, *Sohmer & Katik* LAE 75160 (LAE), *Sohmer & Katik* LAE 75168 (LAE); Ninam Riv, *Sohmer & Katik* LAE 75178 (LAE), LAE 75179 (BISH, BO, LAE); Usino Hwy on N bank of Gogol Riv, *Sohmer & Katik* LAE 75192 (BISH, BM, BO, LAE); nr Kumenak Riv, *Katik* NGF 46560 (BO, K, L, LAE, SING); Mia Riv nr Usino, *Katik et al.* LAE 74729 (L, LAE, UPNG); Ramu–Atitau area, *Pullen* 1079 (CANB, L, LAE); Ramu Riv, *Schlechter* 13884 (BO, BR, K, WRSL), *Tappenbeck* 23 (WRSL); Waliuim Sta, *Sohmer & Katik* LAE 75125 (BISH, BO, LAE), LAE 75127 (BISH, BO, LAE). Mo: Wareo, *Clemens* 1679 (L); Sattleberg, *Clemens* 1076 (CANB, L), 1759 (L), 2049 (BR), *Warburg* 21455 (BM); Sangkwep, *Croat* 52814 (LAE); Gabensis, *Floyd* NGF 5573 (LAE); Butibum Riv, *Hartley* TGH 9806 (CANB, L, LAE), 9806A (CANB, LAE); nr Lae, *Hartley* TGH 10556 (CANB, L, LAE), *White et al.* NGF 1584 (LAE); Atzera Range, *Henty* NGF 11533 (BO, CANB, K, L), NGF 11662 (BO, CANB, K, L, LAE); Bumbu logging area, *Henty* NGF 13677 (CANB, K, L, LAE, PNH, SING), NGF 14849 (CANB, K, L, LAE); Oomsis logging

area, *Henty* NGF 14301 (CANB, L, LAE); Oomsis Forest Sta, *Wiakabu & Kerenga* LAE 73349 (LAE, UPNG); SE of Lae, *Jacobs* 9567 (BISH, BO, LAE); Busu Fores, *Lam* 7726 (L); Finschhafen, *Conn & Katik* LAE 66090 (K, L, LAE), *Lauterbach* 1358 (L), 1383 (WRSL); Bulolo, *Havel & Henty* NGF 9172 (BFC, CANB, L, LAE), *McIntosh* NGF 3588 (CANB, LAE), *Millar* NGF 12231 (BO, CANB, K, L, LAE); Patep, *Millar* NGF 12265 (BO, CANB, K, L, LAE); Buko Crk, *Millar* NGF 14453 (CANB, K, L, LAE); nr Wagau, *Womersley* NGF 17908 (BO, K, L, LAE, SING). Ma: Rambutoyo I, *Kerenga & Croft* LAE 77396 (BISH), *Kerenga et al.* LAE 77449 (BISH); Admiralty Is, without further data, *Mosley s.n.* (K). WH: btwn Ambra Lake & Mt Ambra, *Powell* UPNG 2377 (UPNG); Baiyer River Sanctuary, *Sohmer et al.* LAE 75499 (LAE). EH: Kassam Pass, *Donunaba* NGF 49115 (LAE), *Henty & Coode* NGF 29215 (L, LAE), NGF 29222 (L, LAE), *Henty & Vanderberg* NGF 29284 (L, LAE). Ce: Subitana, *Hartley* TGH 10829 (A, CANB, LAE); Muaumu, *Isles & Vinas* NGF 32399 (K, L, LAE); Laloki Riv, *unknown collector* NGF 4513 (K); Musgrave Riv, *Millar et al.* UPNG 1043 (K, LAE, UPNG); Sogeri S.P., *Forbes* 176 (BM, K, L), 199 (BM), *s.n.* (K); Musgrave Riv, *Schodde* 3098 (CANB, L, LAE); Mafulu, *Brass* 5188 (BISH, BO, K, L); Kokoda Trail, *Larivita & Maru* 70620 (BISH, K, L, LAE). MB: Mt Scratchley, *Giulianetti s.n.* (K), Kwaiawata I, *Gillison* NGF 25329 (CANB, L, LAE); Woodlark I, *Brass* 28779 (L); Rossel I, *Brass* 28508 (K, L, LAE), *Sohmer* LAE 75044 (L, LAE); Sudest I, *Brass* 28122 (L), 28185 (K), *Damas* LAE 74512 (CANB, L, LAE), *Gideon* LAE 73247 (BISH, CANB, L, LAE), *Sohmer* LAE 75001 (LAE), LAE 75007 (LAE), LAE 75017 (L). WNB: base of Mt Gabuna, *Sohmer et al.* LAE 75371 (BISH, LAE), LAE 75379 (LAE), LAE 75383 (LAE), LAE 75396 (BISH, BO, LAE), LAE 75399 (BO, LAE); Garu Wildlife Management Area, *Sohmer et al.* LAE 75405 (BISH, BO, LAE). ENB: Gazelle Pen: Kabakada, *Waterhouse* 910 (K); "Kaiser Wilhelmsland," without further data, *Schlechter* 16272 (C, K, S), *Hellwig* 28 (K), 664 (K), *Hollrung* 351 (K), 470 (BO, K), *Lauterbach* 114 (BM), 588 (K, WRSL), 1044 (WRSL), 1057 (WRSL), *Schlechter* 13826 (WRSL), 13850 (BO, WRSL).

Distribution. Distributed widely along the northern coasts of New Guinea and New Britain. Common in lowland rain forest below 1,000 m, mostly below 200 m.

Distinguishing Features. Stipules fused below into a tube or cylinder; leaves yellowish green in field, often drying the same color; inflorescence branches slender, often lax; corolla whitish yellow, often a slight pink or orange in tone, the tube bell-shaped; fruit red; endosperm not ruminant.

Psychotria leptothyrsa var. *friabilis* Sohmer, var. nov. Fig. 65.—Type: *Sohmer & Kerenga* LAE 75243 (LAE, holotype; BISH, BO, isotypes), PNG: MOROBE PROV: Wau Dist: Aseki Rd about 57 km from Bulolo, in montane cloud forest on a ridge, at ca. 2,200 m, from a small tree to nearly 3 m high, 3 May 1979.

Frutices vel plerumque arbores 1.5–3 m altae parvae sunt, ramulis fragilibus quando contusis foetidis, stipulis non ultra 3–4 mm longis, petiolis 0.8–3 cm longis, laminis $2 \times 6.5\text{--}6 \times 13$ cm chartaceis glabris ellipticis varie elliptico-oblancoelatis in basi acuto-acuminatis in apice plerumque acuminatis vel longe acuminatis, nervis lateralibus 6–9 in dimidio quoque eis et tertius saepe manifestis infra prominentibus, inflorescentia 6–11 cm longa cernua delicata axi in parte $\frac{1}{3}$ – $\frac{3}{4}$ basali eramosa, floribus 5- vel 6-meris dimorphicis, pedicellisque ad 1 cm longis, hypanthio cum calyce 1.5–2.5 mm longo subcupulato lobis brevibus acutis obtusis, corollis albis carnosus, tubo 6–7 mm longo extra laevi glabro intra dense piloso, lobis 4–6 mm longis ovato-subulatis in flore reflexis antheris 3 mm longis sessilibus, in floribus pistilo cum stigmatibus exsertis, fructibus 8–11 mm longis rubris ellipsoideis-globosis, pyrenis in sectione transversa subangulosis et in dorso cum liri centrali, endospermo laevi eruminato.

Shrubs or, more usually, small trees 1.5–3 m high; twigs extremely brittle, snap with minimum pressure, producing a strong, foetid odor when any plant part is bruised or broken. Stipules no more than 3–4 mm long. Leaves with petioles 0.8–3 cm long; blades chartaceous, glabrous, elliptic to elliptic-oblancoelate, $2 \times 6.5\text{--}6 \times 13$ cm, lateral veins 6–9 per side, the lateral veins and tertiaries often quite distinct, impressed above, prominent below, apex generally acuminate to long-acuminate. Inflorescence 6–11 cm long, 1 main axis unbranched $\frac{1}{3}$ – $\frac{3}{4}$ length from base, generally delicate, pendent or lax in flower or fruit. Flowers 5- or 6-merous, dimorphic, on pedicels to 1 cm long; hypanthium and calyx somewhat cupular in shape, together 1.5–2.5 mm long, lobes acute to obtuse, short; corolla white, fleshy, the tube smooth and glabrous without, 6–7 mm long, densely hairy within, the lobes ovate-subulate, 4–6 mm long, reflexed at anthesis; anthers 3 mm long and sessile in pins; pistil with stigmas exserted in pins. Fruit red at maturity, ellipsoid-globose, 8–11 mm long. Pyrenes somewhat angular in cross section with a central ridge on back, endosperm smooth and not ruminant.

Other Specimens Examined. PNG. WS: nr Busilmin airstrip, *Barker* LAE 67621 (BISH, LAE); valley E of Busilmin airstrip, *Vinas & Kenesi* LAE 59386 (LAE); nr Telefomin, Suongot, *Henty* NGF 20857 (L, LAE). Mo: Aseki Rd, ca. 57 km from Bulolo, *Sohmer & Kerenga* LAE 75211 (LAE); spreader divide between Aseki & Menyama, *Streimann & Kairo* NGF 45466 (A, BO, K, LAE);

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Fig. 65. *Psychotria leptothyrsa* var. *friabilis*. Sohmer & Kerenga LAE 75243 (LAE, holotype).

Angabena Ridge, ca. 3 km from Aseki-Menyamya Rd, *Streimann & Stevens LAE 53888* (L, LAE). E: Wabag-Kompam Rd, *Flenley ANU 2685* (CANB, K, L, LAE); nr Tambul, *Womersley NGF 14251* (L, LAE). WH: Kepaka, *Bowers 336* (LAE). W: Ok Tedi Riv, *Foreman & Galore NGF 45791* (K, L, LAE).

Distribution. Usually on ridges and slopes in montane forests between 1,600 and 2,600 m.

Distinguishing Features. Plants with foetid odor, twigs extremely brittle; leaf blades with tertiary veins prominent, often drying a dark grayish green; flowers with pedicels to 1 cm long, anthers about 3 mm long.

Remarks. This variety can barely be separated in the herbarium from var. *multifurca*. In the field, however, there is no problem doing so for the foetid odor and brittle wood of var. *friabilis* are difficult to overlook.

Psychotria leptothyrsa var. *multifurca* (Valeton) Sohmer, **comb. nov.** Fig. 66.
Psychotria multifurca Valeton, Bot. Jahrb. 61: 90 (1927).—Type: *Ledermann 10143* (L, lectotype, herein designated), PNG: Sepik area: Lordberg.

Shrubs or small trees 1–3(–6) m high. Stipules to 0.5 cm long. Leaves with petioles 0.8–2.1 cm; blades membranaceous to chartaceous, glabrous, oblanceolate-elliptic to elliptic, 2 × 5–5.5 × 16(–5.5 × 21) cm, lateral veins 7–10 per side, apex abruptly short-acuminate, generally drying yellow-green. Inflorescence generally delicate, 3.5–10 cm long, usually with a peduncle (unbranched main axis) to ½ of this length, in which case pendent, or sessile (main axis branched at or near base), 1–4 primary nodes. Flowers on long, slender pedicels to 1 cm long; calyx and hypanthium together 1–1.2 mm long, wide, tube somewhat bowl-shaped, 5–7 mm long, lobes ovate, 3–4 mm long, reflexed at anthesis; anthers 3 mm long, exserted in thrums; pistil with style and stigma included in thrums. Fruit red at maturity, obovoid-globose, 8–10 mm long. Pyrenes smooth on back, endosperm homogeneous, not ruminant, but with a T-shaped invagination (in cross section) of the seed coat at base.

The specimen herein designated as lectotype is probably the only extant representative of several collections listed by Valeton in his original description. There is little information on the Leiden specimen itself other than “Neu Guinea: Sepik Gebiet” and Ledermann’s name, collection numbers, and date. It represents a duplicate that might have been sent to Leiden from Berlin. According to Valeton’s treatment, the collection was made by Ledermann on the 6th of December

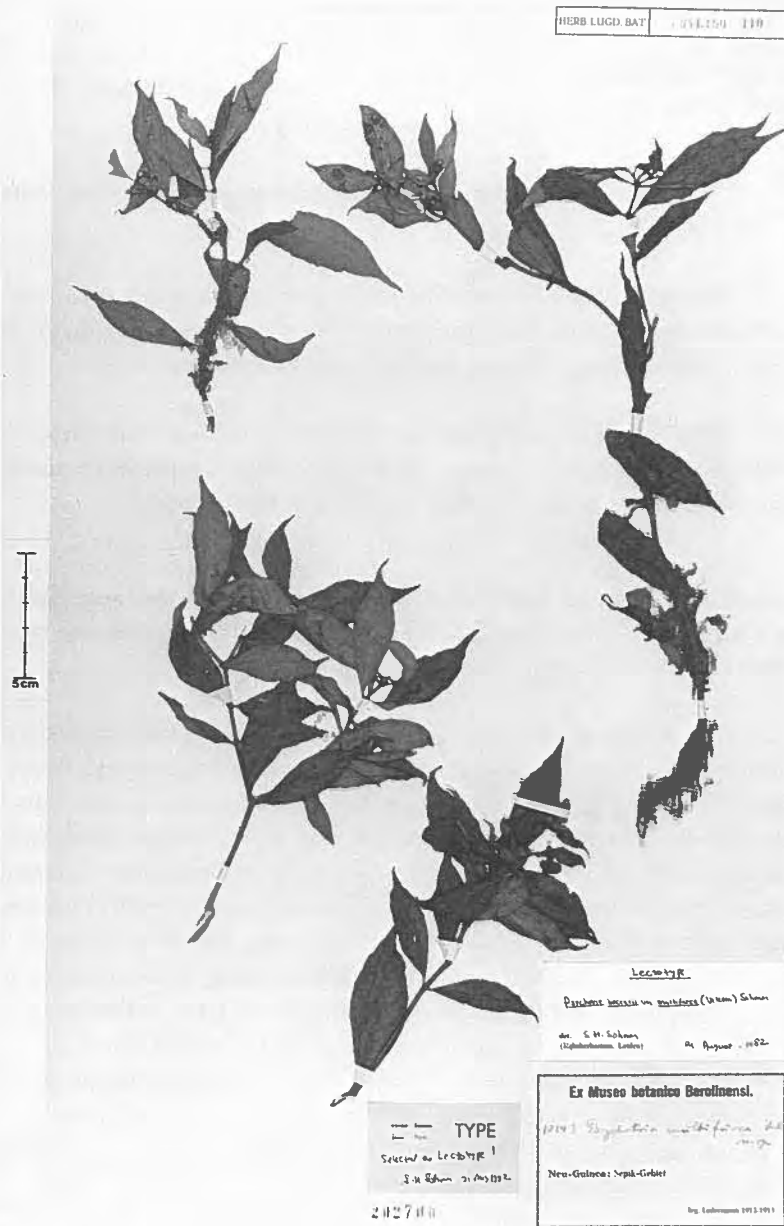


Fig. 66. *Psychotria leptothyrsa* var. *multifurca*. Ledermann 10143 (L, lectotype).

1912 at 1,000 m elevation and was a shrub 1–1.5 m tall with white flowers, “bright brown” calyx, and “brown” fruit (which probably was an overripe red). It was not until I had the opportunity to examine this specimen at Leiden that the placement of Valetton’s taxon became clear to me.

Other Specimens Examined. IJ. Vogelkop Pen: Tohkiri Mts, *van Royen & Sleumer* 7257 (BO, L, LAE); Ije Riv Val, *van Royen & Sleumer* 7668 (L); Jabigebirge, Geelvink Bay, *Janowsky* 327 (BO); Okwalimkam, river headwaters, *Ridsdale & Galore* NGF 33171 (LAE), NGF 33189 (LAE); Gingembib to Opka, *Reksodihardjo* 434 (L); Idenburg Riv, *Brass* 12261 (L), 12355 (A, BM, L), 12800 (BM, BO, L). PNG. WS: Orketbil, *Henty* NGF 20907 (K, L, LAE); Prospect Crk nr Freida Riv, *Henty & Foreman* NGF 42526 (BO, K, L, LAE). ES: Mt Hunstein, *Hoogland & Craven* 11060 (LAE); Sepik area, without further data, *Ledermann* 8535 (SING). M: Finisterre Mts, Budemu, *Sayers* NGF 21276 (L). Mo: Wagau, *Millar* NGF 23425 (CANB, L, LAE, SING), *Sayers* NGF 21511 (CANB); Aseki Rd ca. 57 km from Bulolo, *Sohmer & Kerenga* LAE 75222 (LAE), LAE 75229 (LAE), LAE 75230 (BO, LAE), LAE 75253 (LAE); Mt Dilmargi, Kisingam, *Stevens* LAE 58019 (L); New Yamap, *Streimann & Kairo* NGF 47553 (K, L, LAE); Wantot area, Kikiepa Vill, *Womersley & Thorne* NGF 12662 (LAE); Edie Crk, *Womersley* NGF 24660 (L, LAE); track to Mt Shungol, *Kairo* NGF 45312 (L); Mt Rawlinson, *Hoogland & Craven* 9328 (A, CANB, K, L, LAE). WH: Mt Hagen, *Womersley* NGF 9423 (K, LAE); Trauna Val, *Millar* NGF 37639 (BO, CANB, K, L, LAE). EH: nr Okapa, Purosa, *Brass* 31750 (K, L); nr Okapa, Wanatabi, *Hartley* TGH 13142 (CANB, L, LAE); Kassam Pass, *Coode* NGF 32836 (BO, K, L, LAE, SING). SH: Waro airstrip, *Jacobs* 9207 (LAE). Ce: Efogi Vill, *Kanis* 1418 (CANB, K, L, LAE); Bordi, *Carr* 14430 (NY, SING), 14914 (CANB, K); Lala Riv, *Carr* 15680 (CANB, L). MB: Mt Simpson, *Fisher* 35 (CANB, K, L, LAE), *Kanis* 1285 (CANB, L, LAE), *Schodde* 5555 (CANB, K, L, LAE). NI: Taro, *Sands et al.* SAND 1931 (L). NS: slopes of Lake Loloru Crater, *Craven & Schodde* 176 (CANB, LAE), 212 (CANB, LAE); Bougainville: mts nr Bokarkani, *Ridsdale & Lavarack* NGF 31576 (CANB, LAE). “New Guinea,” without further data, *Manner & Street* 415 (L), 515 (L), *Vinas* LAE 67011 (BISH, L).

Distribution. From Irian Jaya to the North Solomon Islands in montane forests above 1,000 m (mostly over 2,000 m).

Distinguishing Features. Very like the nominate variety but with leaves smaller and narrower, the inflorescence smaller, tending to be pendent or lax due to the production of a peduncle; pyrene hemispherical in cross section rather than triangular.

Remarks. This taxon may be the same as *P. montana* var. *gracillima* Wernham (Wernham 1918), but in the absence of type material this is difficult to determine. As mentioned above, only after I had examined the lectotype specimen did the identity of Valetton's taxon become clear. Valetton recognized a relationship between this taxon and his concept of *P. leptothyrsa*: "Die Art ist sicher nahe verwandt mit *P. leptothyrsa* durch die Blüten und den Habitus."

Psychotria leucococca Lauterbach, in Schumann & Lauterbach, Fl. Deutsch. Schützgeb. Südsee, p. 577 (1901). Fig. 67.—Type: *Lauterbach 2131* (not seen), PNG: "Oertzen-Gebirge, im Hochwald am Gipfel."

Psychotria hageniana Gilli, Ann. Naturhist. Mus. Wien 83: 462 (1980).—Type: *Dosedla 171* (W, holotype).

Shrubs usually 0.5–3 m high, occasionally taller. Stipules valvate, pubescent (occasionally glabrous), ovate, to 1 cm long, apex cleft, lobes acute-acuminate. Leaves with petioles 0.6–1.1 cm; blades semicoriaceous, glabrous, oblanceolate-elliptic, 1.5×3.8 – 3×7 (– 4.7×12), lateral veins 8–12 per side, apex generally acuminate, base acute. Inflorescence short, to 4 cm long, usually trichotomous from base with 1 main axis and 2 smaller ones (the smaller ones probably branches of the main axis), each axis terminating with 1 to several cymules, ultimate branches and pedicels often minutely pubescent. Flowers 5-merous, dimorphic, glabrous, on short pedicels less than 2 mm long; hypanthium and calyx together about 3 mm long, lobes short obtuse or acute at summit; corolla white, very thick and fleshy, tube about 5 mm long, hairy within, lobes ovate-oblong, often nearly as long as tube, reflexed at anthesis; anthers about 1.5 mm long in pin flowers. Fruit white at maturity, globose-ovoid, 5–7 mm long. Pyrenes with scarcely noticeable irregular ridges on back, endosperm ruminant.

I examined a Schlechter specimen (17080) from C that is annotated by Valetton. If ever it becomes desirable to designate a neotype for this taxon, this specimen would be appropriate.

Other Specimens Examined. IJ. Cyclops Mts, *Gjellerup 525* (BO, L), *van Royen & Sleumer 5915* (L, LAE). PNG. WS: *Untembil, Henty NGF 20843* (LAE). M: *Saidor area, Sewe, Sayers NGF 19763* (L); *Simbagi Val, Tsembaga, Street 168* (LAE); *Finisterre Range, Pullen 5989* (CANB, LAE), *6121* (CANB, LAE). Mo: *Andarova Vill, Blackwood 99* (K); *Waria Riv, Garaina, Gideon LAE 76111* (LAE); *Mt Salawaket, Hartley TGH 11210* (CANB, LAE); *Cromwell Mts, Mannasat, Hoogland 9601* (CANB, LAE); *Aseki-Bulolo Rd, Sohmer & Kerenga LAE 75217* (LAE). MB: *Guaru ridge nr Mayu Riv, Stevens & Veldkamp LAE*

SOHMER: NEW GUINEA AREA PSYCHOTRIA

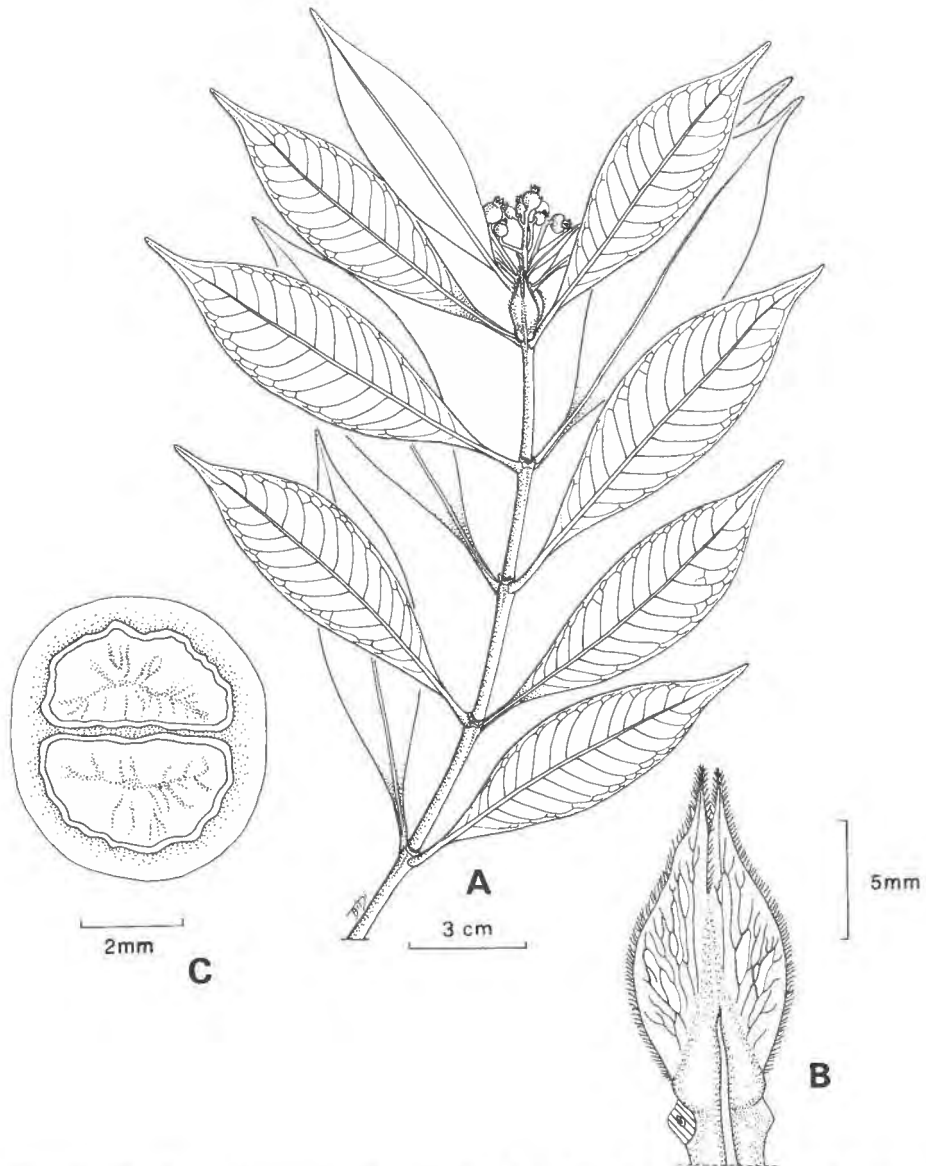


Fig. 67. *Psychotria leucococca*. Sohmer et al. LAE 75518 (LAE): A, habit of fruiting branch; B, stipule showing cleft apex; C, fruit x.s. showing ruminated endosperm.

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55591 (LAE); Tantam Plateau above Mayu Riv, *Stevens LAE 55625* (LAE). WH: Wankl Vill, *Hoogland & Pullen 5806* (LAE); Mt Kum, *Womersley NGF 9511* (LAE); ridge btwn Baiyer & Jimi valleys, *Sohmer et al. LAE 75518* (LAE); NNE of Nondugl, *Simonett 122* (LAE). C: Keglsugl area, *Wade ANU 7619* (LAE). EH: Mt Otto, *Brass 30942* (K, LAE); Purosa, *Brass 31652* (LAE); foothills of Mt Piora, *Coode & Argent 3888* (LAE); Marafunga Mill, *Grubb & Edwards 57* (LAE); nr Ikana, *Hartley TGH 12094* (A, CANB, L); Daulo Pass area, *Pullen 401* (CANB, K, LAE), *435* (CANB, LAE), *Saunders 870* (CANB, LAE), *Sohmer et al. LAE 75462* (LAE); Mt Michael, *Sohmer & Kerenga LAE 75431* (LAE); Okapa, *Hornibrook 150* (LAE); Wanatabi, *Hartley 13144* (LAE). SH: Iaro Riv, *Andrew LAE 57080* (CANB, LAE), *Croft et al. 60605* (BISH, CANB, K, LAE); Mt Giluwe, *Croft et al. LAE 60812* (BISH, CANB, K, LAE); Mt Ne, *Frodin NGF 28412* (LAE); Habono rest house, *Frodin NGF 32029* (BO, CANB, LAE); Mt Ilu, *Gebo UPNG 1673* (BISH, CANB, L, LAE, UPNG). W: Mt Bosavi, *Jacobs 8884* (BISH, LAE); Boridi Vill, *Carr 13259* (CANB). C: Port Moresby S.P., *Foreman & Vinas LAE 60172* (K, LAE); Kerau Mission area, *Frodin 677* (UPNG); Astrolabe Range, *Stevens LAE 50411* (CANB, K, LAE); Woitape, *Buderus NGF 20750* (LAE), *Millar UPNG 1206* (L, UPNG); Wharton Range, *van Royen NGF 30039* (K, LAE). "Kaiser-Wilhelmsland": "Ibo Mtns. without further data," *Schlechter 17080* (BM, C, L, S).

Distribution. Fairly well distributed throughout the Highlands of New Guinea in montane forests between 1,000 and 3,000 m. Also reported from a low elevation location in Irian Jaya. Apparently common in most areas.

Distinguishing Features. Stipules ovate, apex cleft, lobes acute-acuminate; leaf blades oblanceolate-elliptic, less than 12 cm long; corolla tube about 5 mm long, lobes nearly as long; fruit white.

Remarks. This taxon is very similar in appearance to *P. valetoniana*, sp. nov., and specimens that are sterile and without stipules would be difficult, if not impossible, to distinguish from the latter. The ovate stipules cleft at the top are indicative of *P. leucococca*, for in *P. valetoniana* the stipules are triangular-subulate and the lobes are acuminate at the apex. If this character is more variable than it appears at present, these taxa would have to be combined. The flowers of *P. leucococca* are larger than those of *P. valetoniana*. The plants at hand appear to fit the original description well. *Psychotria leucococca* is also similar to *P. pulleniana*, sp. nov., with only the size of the leaves and number of primary veins per side of the leaf blade to distinguish them. Additional specimens may well provide evidence that these 2 taxa are conspecific. Gilli (1980) created a

number of superfluous taxa; *P. hageniana* is one of them. Gilli did not designate a holotype; I am therefore assuming that the specimen deposited at W, his home institution, is the holotype.

Psychotria longipaniculata Sohmer, sp. nov. Fig. 68.—Type: Craven & Schodde 1203 (LAE, holotype; L, isotype), PNG: MOROBE PROV: nr Haumuga, Aseki Patrol area, in a steep gully in secondary lower montane forest, ca. 1,800 m, 6 Apr 1966.

Frutices vel arbores ca. 4 m altae sunt, stipulis valvatis membranaceis latiore obovatis usque ad 2.5 cm longis integribus vel minute ciliatis et in apice subfissis, petiolis 2 cm longis, laminis 8×18 – 10.54×23 cm coriaceis glabris obovatis basi acuta apice acuminato-cuspidato nervis lateralibus 12–19 in dimidio quoque, nervis lateralis alternatis vel suboppositis, inflorescentia vel 31 cm longa alba quam foliis sustentibus duplo longioribus axi principali robusto singulari per partem $\frac{1}{3}$ – $\frac{1}{2}$ basalem eramosi nodis primariis 6–7, nodo secundo 7 cm ex primario plerumque nodis cum ramulis verticillatis eis per partem $\frac{2}{3}$ – $\frac{3}{4}$ basalem eramosis in toto paniculo late pyramidalis, floribus incognitis, fructibus 4 mm longis latisque obovoideo-turbinatis sed in angulis aequalibus ex septo compressis licet albis, pyrenis cum dorso sine loris, endospermo subruminato.

Shrubs or small trees about 4 m tall. Stipules valvate, membranaceous, very broadly obovate, to 2.5 cm long, apex weakly cleft, margins entire or minutely ciliate. Leaves with petioles about 2 cm long; blades coriaceous, glabrous, obovate, 8×18 – 10.5×23 cm, lateral veins 12–19 per side, veins alternate or subopposite along midrib, apex acuminate-cuspidate, base acute. Inflorescence white, robust, to 31 cm long, nearly $2 \times$ the length of subtending leaves, 1 robust main axis unbranched $\frac{1}{3}$ – $\frac{1}{2}$ its length from base and over 4 mm wide at base, 6–7 primary nodes (distance between 1st and 2nd node over 7 cm) with verticillate branching at most, lateral branches not branching $\frac{2}{3}$ – $\frac{3}{4}$ their length from main axis, the whole creating a wide pyramidal-shaped panicle. Flowers unknown. Fruit probably white at maturity, obovoid-turbinate, flattened perpendicularly to septum between pyrenes, about 4 mm long and wide. Pyrenes without ridges on back, endosperm weakly ruminant.

Distinguishing Features. Leaf blades large and obovate; stipules large, broadly obovate; inflorescence white, very large and robust, $2 \times$ the length of subtending leaves.

Remarks. This taxon probably belongs with a complex of species that includes *P. ramulosa* Merrill & Perry. What distinguish it from *P. ramulosa* are



Fig. 68. *Psychotria longipaniculata*. Craven & Schodde 1203 (LAE, holotype): habit of fruiting branch.

the extremely large and robust inflorescence and the very broadly obovate, large stipules.

Psychotria lorentzii Valetton, in Lorentz, Nova Guinea 8: 492 (1911). Fig. 69.—

Type: *von Römer 1270* (L, lectotype, here designated; BO, isolectotype), IRIAN JAYA: Hellwig Mts, at 2,583 m.

A shrub often climbing on adjacent vegetation. Stipules fused forming a long, conical calyptra which splits at 1 side and falls away as 1 unit, glabrous, linear-lanceolate, to 1.5 cm. Leaves with short petioles 0.2–1 cm long; blades coriaceous, glabrous, shiny, obovate to orbicular, 1 × 2–2.3 × 2.9 cm, lateral veins 3–5 per side, tertiary veins not visible, apex often with a short acute-mucronate point, margins recurved, base cuneate to acute. Inflorescence 2–7 cm long, as long as the subtending leaves or longer, usually trichotomous with the 3 principal axes diverging from the base, each unbranched a certain distance from base and then producing cymules. Flowers 5-merous, dimorphic(?), entirely glabrous without, sessile, often subtended by small bracteoles to 1 mm long; calyx and hypanthium together about 3 mm long, lobes small, summit obtuse; corolla thick and fleshy, glabrous within at throat, 3–4 mm long; anthers relatively large, to 2 mm long. Fruit white at maturity, ellipsoid, to 6 mm long. Pyrenes with 3–4 clearly defined ribs on back, endosperm somewhat ruminant at margins.

Other Specimens Examined. IJ. Vogelkop Pen: Nettori Range, *van Royen & Sleumer 8086* (BO, L); Nassan Mts, *Docters van Leeuwen 10865* (BO, L); Kebar Val, *Versteeg BW 10370* (L); Lake Habbema, *Brass 9239* (BM, L, LAE), *10594* (A, BM, BO, L); Wichmannsberg, *Pulle 1056* (BO, L); Hellwig Mts, *Pulle 878* (BO, K, L); Poka Pindjang, *Kjellberg 1487* (S); Mamberamo, *Lam 1925* (BO, K, L). PNG. E: Lagaip-Kaudep Divide, *Robbins 3224* (LAE). WH: Minj-Nona Divide, *Pullen 5210* (BO, SING); Mt Hagen, *Robbins 207* (LAE); Wabag Rd, *Vandenberg et al. NGF 39872* (BO, L); Sirunki, *Walker ANU 817* (L). SH: Kagaba, *Coode & Katik NGF 32991* (L), *Leach LAE 56178* (BO, CANB, K, L); Mt Giluwe, *Schodde 2051* (K, L, LAE); Tari S.P., *Vink 17516* (K, LAE); Lei to Mt Ambua track, *Frodin NGF 28286* (BO, SING).

Distribution. Primary or disturbed high montane or cloud forests around the 3,000 m elevation level across much of the Central Highlands of New Guinea.

Distinguishing Features. Leaf blades small, coriaceous, obovate, tertiary veins not visible, base cuneate; pyrenes with 3–5 very prominent ridges.

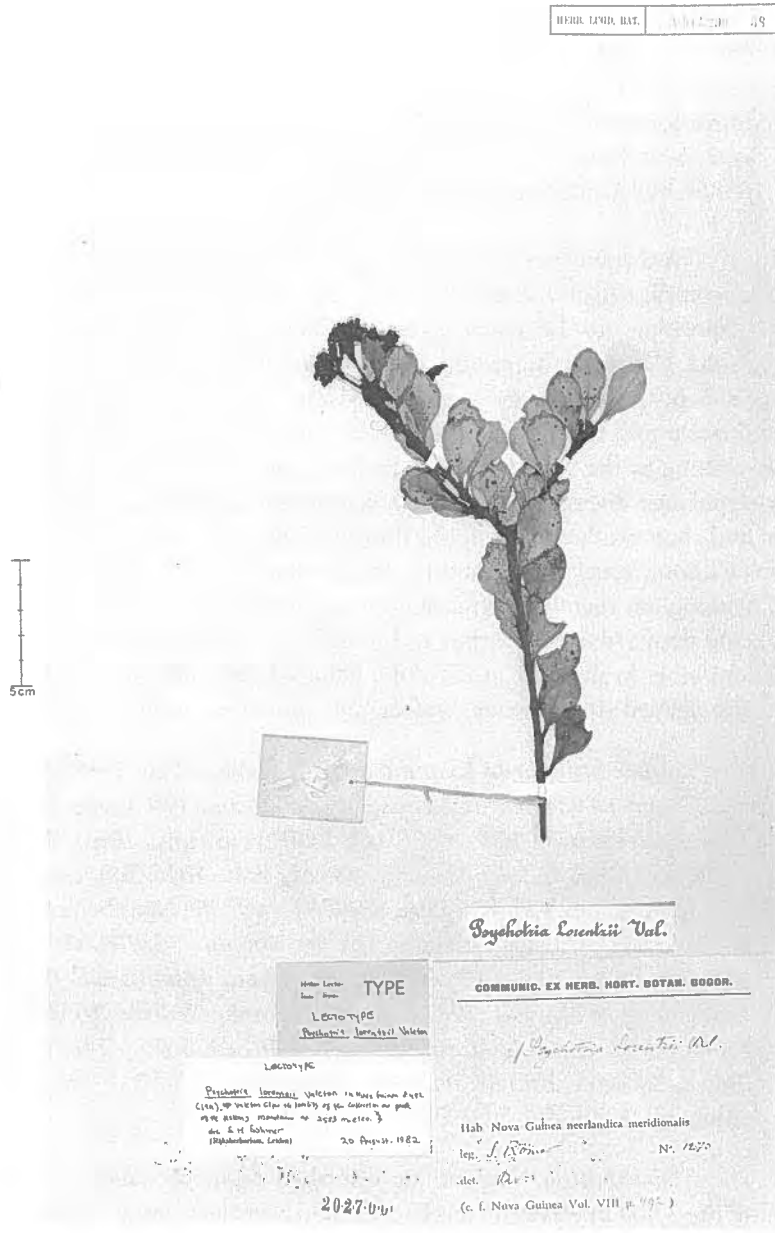


Fig. 69. *Psychotria lorentzii*. von Römer 1270 (L, lectotype).

Remarks. There is good representation of this taxon in LAE. The specimens compare somewhat favorably with the Kew material, but the leaves of the LAE specimens are smaller and thicker. The major difficulty is in interpreting the habit. Never having collected this myself, I am unfamiliar with it in vivo. Notations on the specimens proclaim it to be everything from a shrub to a tree, or a climber; however, the stipules alone nearly convince me that it is in fact a shrub whose branches clamber over neighboring vegetation.

Psychotria luteola Merrill & Perry, J. Arnold Arbor. 27: 200 (1946). Fig. 70.—
Type: *Brass* 5226 (A, holotype; BO, isotype), PNG: CENTRAL PROV: Mafulu, undergrowth of limestone belt forests, at 1,250 m, from a straggling tree 3 m tall with yellow flowers, Sep–Nov 1933.

Small trees or shrubs 3–6 m tall. Stipules valvate, glabrous, triangular-ovate to lanceolate, 0.5–1.5 cm long, apex not cleft. Leaves with petioles 1.2–3 cm long; blades chartaceous to semicoriaceous, glabrous, obovate-elliptic to broadly elliptic, 5.5 × 10–12 × 24 cm, lateral veins 10–14 per side, apex acute often with an acuminate tip, base obtuse or round. Inflorescence trichotomous, main axis unbranched $\frac{1}{3}$ – $\frac{1}{2}$ length from base, 2–3 primary nodes with opposite or verticillate branching at each, glabrous or puberulent on terminal axes, the ultimate branches with spreading cymules. Flowers 4- or 5-merous, on short pedicels about 1 mm long; hypanthium and calyx together 2–3 mm long, minutely puberulent; corolla white or yellow, often puberulent, tube about 1.5 mm long, lobes 1–2 mm long; anthers 0.8 mm long; style 1.5 mm long. Fruit unknown, presumed red at maturity.

Other Specimens Examined. PNG. Mo: Mt Shungol, SW of Wagau, Hartley TGH 12487 (A, CANB, K, L).

Distinguishing Features. Inflorescence trichotomous; leaves with blades broadly elliptic to obovate-elliptic, bases often round or obtuse.

Remarks. I have found nothing that really matches the type specimen of this taxon, and am here dubiously referring 1 collection to it. The reported yellowish flowers, their size, and the nature of the inflorescence give this taxon a striking resemblance to *P. chrysantha*, but the leaves differ in overall shape and venation from that taxon. *Psychotria luteola* also resembles *P. micralabastra* (Lauterbach & Schumann) Valeton but *P. luteola* occurs at higher elevations and its leaves are rounder at the base and wider. The Hartley collection has flowers about twice the size of those of the type collection; I originally was going to

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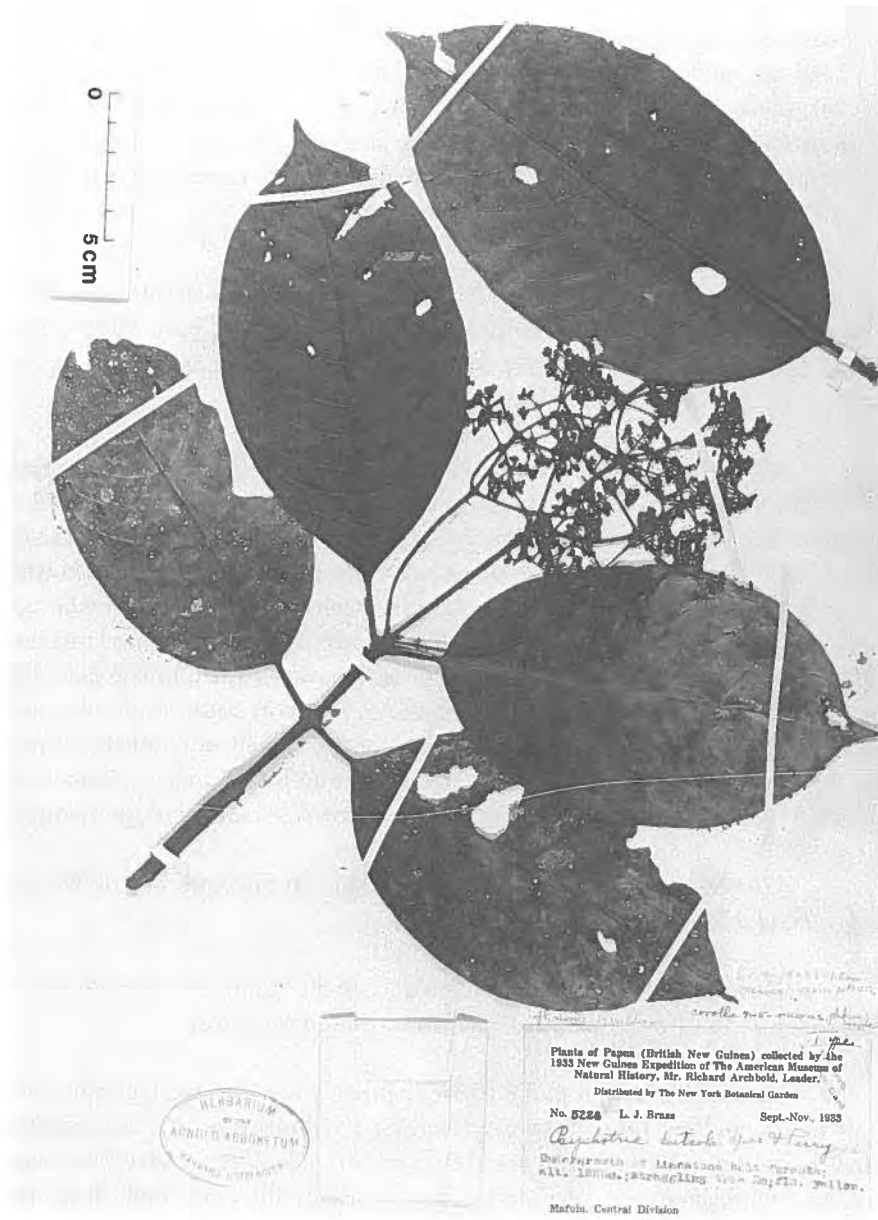


Fig. 70. *Psychotria luteola*. Brass 5226 (A, holotype).

segregate the Hartley material into a separate taxon, but decided against doing so. Merrill & Perry (1946) believed their taxon was closely related to *P. sogerensis* Wernham.

Psychotria mafuluensis Moore, Proc. Roy. Soc. Queensland 34: 57 (1922). Fig. 71.—Type: *White 416* (BM, lectotype, here designated; A, BM, isoelectotypes), PNG: CENTRAL PROV: Mafulu, Aug 1918.

Trees 2–4 m tall, glabrous. Stipules valvate, glabrous, obovate, much broader towards apex and cleft, to 2 cm long, margins entire. Major leaves with petioles 0.5–3.5 cm long; blades thinly coriaceous, glabrous, elliptic to oblanceolate, or obovate, 6.5 × 14–13 × 26 cm, lateral veins 11–20 per side, apex acute, acuminate or cuspidate, base acute or acuminate. Inflorescence white, longer than the subtending leaves, pyramidal in shape, 13–30 cm long, the main axis unbranched $\frac{1}{3}$ to $\frac{1}{2}$ its length and less than 4 mm wide at base, 3–4 primary nodes with verticillate or opposite branching at each, each branch subtended at base by linear-subulate bracts to 1 cm long, ultimate branches terminating in cymes of 3 pedicellate flowers. Flowers 5-merous, dimorphic, glabrous without; hypanthium about 1 mm; calyx about 0.5 mm, truncate or with minute lobes; corolla white, tube about 5–6 mm long, hairy within, lobes 2–3 mm long, rotate at anthesis; anthers not exerted (pin flowers), nearly 2 mm long; pistil with style 8–9 mm (pin flowers), stigmas exerted. Fruit white at maturity, globose-turbinate, about 4 mm long; pyrenes not strongly ribbed in outline, endosperm ruminant.

The type collection is recorded as having panicles with white branches. Although it would be reasonable to assume that the author would have indicated the specimen at BM as the type, as there are at least 2 duplicates of which I am aware, I am herein designating the specimen at BM as lectotype.

Other Specimens Examined. PNG. W: 40 km NE of Ningeram, *Hyn 155* (LAE); Mt Bosavi, *Jacobs 8773* (L, LAE). Ce: nr Boridi Vill, *Foreman & Vinas LAE 60273* (LAE).

Distribution. Found principally in primary forests in Papua from 400 to 1,200 m.

Distinguishing Features. Leaf blades large, robust, obovate-elliptic; inflorescence white, robust and longer than subtending leaves, with linear-subulate bracts to 1 cm subtending primary branches; flowers with corolla 5–6 mm long, anthers about 2 mm long.

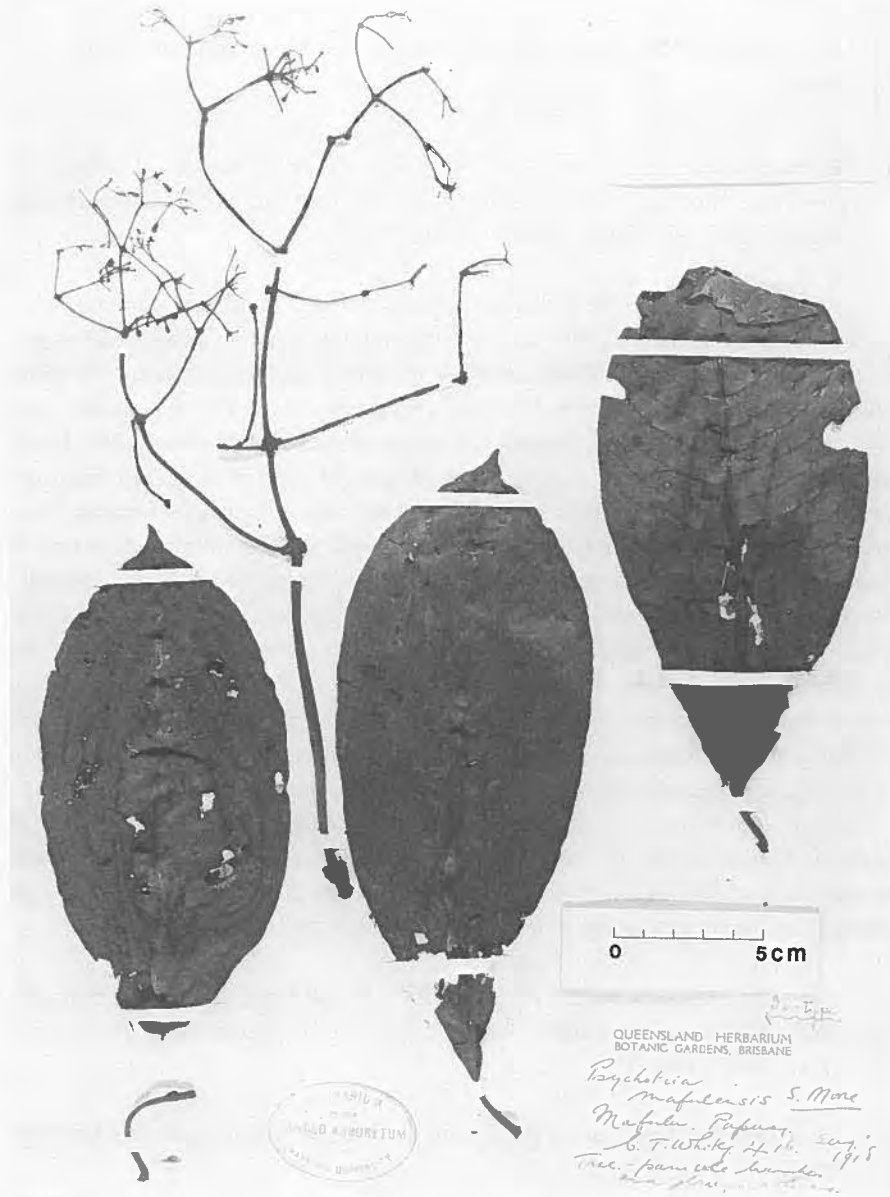


Fig. 71. *Psychotria mafuluensis*. White 416 (A, isolectotype).

Remarks. This species is part of the *P. micrococca* complex. The Jacobs collection has clear evidence of ant habitation and therefore is myrmecophilous. Whether all individuals in this taxon are myrmecophilous is unknown at present.

Psychotria magnasepala Sohmer, sp. nov. Fig. 72.—Type: Hoogland & Schodde 7551 (LAE, holotype; L, isotype), PNG: ENGA PROV: Liagam Dist: Yobobos grassland area, in mixed montane forest, at ca. 2,600 m, 28 Aug 1960.

Frutices vel arbores 1–5 m alti sunt, stipulis valvatis usque ad 1.7 cm longis valvatis subtilibus late obovatis in apice profunde fassis lobis longe acutis varie subacuminatis in dorso cum pilis adpressis dispersis aliter glabris, petiolis 0.6–1.5 cm longis, laminis $1.9 \times 6.5\text{--}3.3 \times 11.4$ cm chartaceis anguste ellipticis varie oblanceolato-ellipticis basi acuta apice acuminato subglabris nervis lateralibus 10–11 in dimidio quoque, inflorescentia glabra usque ad 6 cm longa foliis aequanti axi principali 6 cm longo in apice cymis 3-florifera ferrenti et 2 ramis simulentibus axi in parte $\frac{2}{3}\text{--}\frac{3}{4}$ ex basi cum 3 cymis longe pedicellatis, floribus 5-meris dimorphicis glabris, pedicellis usque ad 1 cm longis, hypanthio 1.5–2 mm longo, tubo calycis 2 mm longo, lobis 10 mm longis lineari-subulatis, corollis albis tubo 10 mm longo intra pubescenti, lobis 6–7 mm longis in flore reflexis, antheris 1.5 mm longis in floribus pinaceis, fructibus 1 cm ellipsoidea-ovoideis licet albis a tubo calyce connatis pyrenis in dorso cum costis irregularibus endospermo ruminato.

Shrubs or small trees 1–5 m high. Stipules valvate, thin, glabrous except for some scattered appressed hairs on back, broadly obovate, to 1.7 cm long, apex cleft deeply, the lobes long-acute to nearly acuminate. Leaves with petioles 0.6–1.5 cm long; blades chartaceous, essentially glabrous, narrow-elliptic to oblanceolate-elliptic, $1.9 \times 6.5\text{--}3.3 \times 11.4$ cm, lateral veins 10–11 per side, apex acuminate, base acute. Inflorescence to 6 cm long, about equaling length of subtending leaves, with 1 main axis terminated $\frac{2}{3}\text{--}\frac{3}{4}$ of length from base by 3 long-peduncled cymes (the main axis producing a terminal cyme of 3 flowers and the 2 branches doing the same), glabrous. Flowers 5-merous, dimorphic, glabrous, on pedicels to 1 cm long; hypanthium 1.5–2 mm long; calyx tube about 2 mm long, lobes linear-subulate, each about 10 mm long; corolla white, corolla tube fleshy, 10 mm long, pubescent within, lobes 6–7 mm long, reflexed at anthesis; anthers about 1.5 mm long in pin flowers. Fruit probably white at maturity, ellipsoid-ovoid, about 1 cm long, crowned by persistent calyx tube. Pyrenes with shallow and irregular ribs on back, endosperm ruminant.



Fig. 72. *Psychotria magnasepala*. Hoogland & Schodde 7551 (LAE, holotype): habit of flowering and fruiting branches.

Other Specimens Examined. PNG. SH: Lalibu S.P.: Mt Giluwe, Schodde 1699 (LAE).

Distinguishing Features. Inflorescence terminating in 3 discrete cymes of 3 flowers each; calyx lobes 10 mm long.

Remarks. This species is similar in habit to *P. leucococca* and *P. valetoniana*, sp. nov., but well apart from these and all others, save *P. giluwensis*, by the length of the calyx lobes. Here, again, we press hard against the morphological borders of what has generally been accepted as *Amaracarpus*.

Psychotria marafungaensis Sohmer, sp. nov. Fig. 73.—Type: *Streimann & Kairo* NGF 45300 (LAE, holotype; BFC, BO, K, L, isotypes), PNG: EASTERN HIGHLANDS PROV: Goroka Dist: Marafunga, at ca. 2,600 m, 3 Oct 1970.

Arbores 3–6 altae sunt, novellis et petiolis dense pubescentibus, stipulis valvatis 0.5–0.8 cm longis dense pubescentibus ovato-lanceolatis apice acuminato non fisso (solim in apice bidentato), petiolis 0.8–2.5 cm longis, laminis 2×4.5 – 5×12.5 cm ellipticis varie elliptico-obovatis basi obtusa apice acuto vel breve acuminato infra pubescentibus nervis lateralibus 6–10 in dimidio quoque, inflorescentia usque ad 7 cm longa axi principali solitario, pedunculo 0.5–1.5 cm longo, nodis primariis 2–3 remotis, ramis oppositis, ramulis in cymis terminantibus, pedicellis 1.5–2 cm longis, axibus pubescentibus, floribus omnino pubescentibus 5-meris dimorphicis(?) pedicellatis, calyce et hypanthio 2–4 mm longo lobis 1–2 mm longis, corollis 10–12 mm longis albis subtilibus ad apicem distentis intra pilosa lobis 4–5 mm longis oblongis, fructibus 7–9 mm longis globoso-ellipsoideis rubris(?), pyrenis in dorso laevibus, endospermo ruminato.

Trees 3–6 m high, young branches and petioles densely pubescent. Stipules valvate, ovate-lanceolate, 0.5–0.8 cm long, densely pubescent, apex acuminate, not cleft (although sometimes with 2 teeth at apex). Leaves with petioles 0.8–2.5 cm long; blades elliptic to elliptic-obovate, 2×4.5 – 5×12.5 cm, lateral veins 6–10 per side, pubescent below, apex acute to short-acuminate, base obtuse. Inflorescence to 7 cm long, 1 main axis with peduncle 0.5–1.5 cm long, 2–3 widely spaced primary nodes with opposite branching at each, the branches terminating in cymules in which the individual flowers possess very long pedicels from 1.5–2 cm long, all axes densely pubescent. Flowers 5-merous, dimorphic(?), pubescent throughout, pedicellate; calyx and hypanthium together 2–4 mm long, the lobes $\frac{1}{2}$ this length; corolla white, thin in texture, expanded towards summit, 10–12 mm long, hairy within, the lobes oblong, 4–5 mm long. Fruits red(?) when ripe, globose, ellipsoid 7–9 mm long. Pyrenes smooth on back, endosperm ruminant.

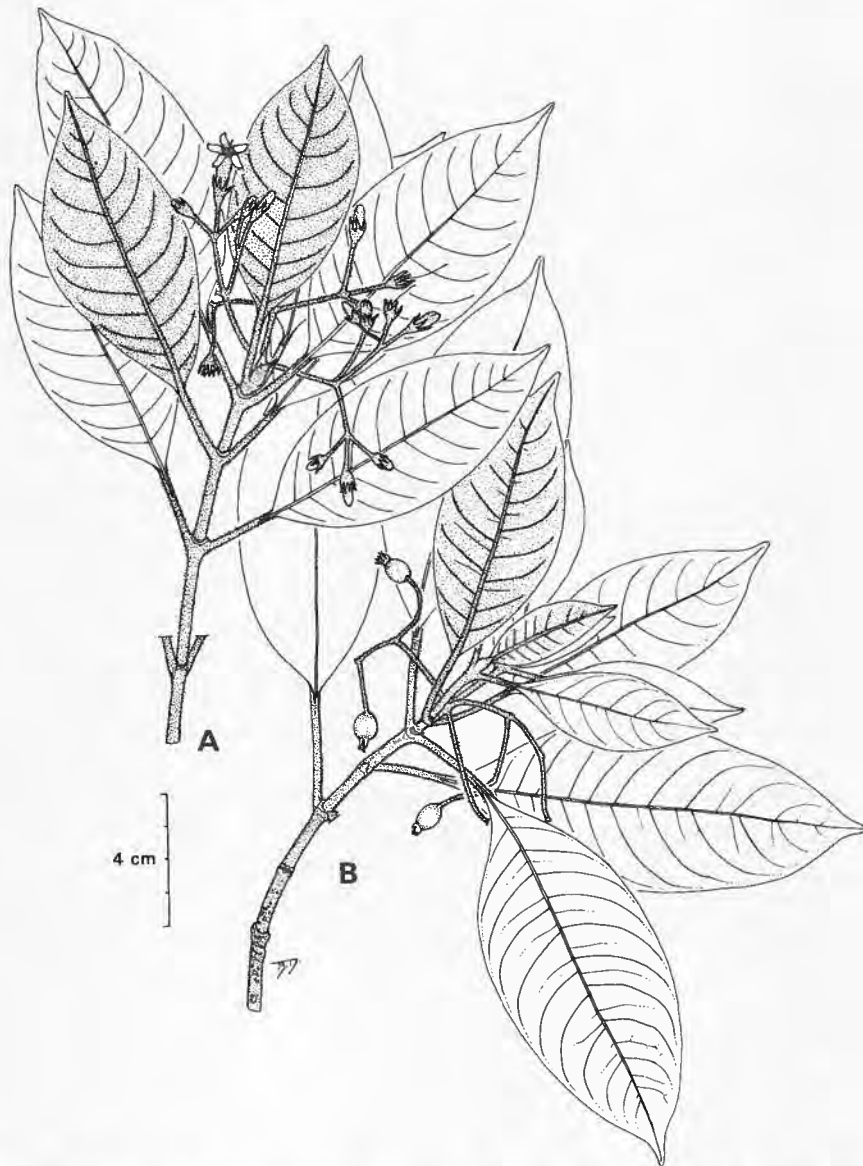


Fig. 73. *Psychotria marafungaensis*. Streimann & Kairo NGF 45300 (LAE, holotype): A, habit of flowering branch; B, habit of fruiting branch.

SOHMER: NEW GUINEA AREA *PSYCHOTRIA*

Other Specimens Examined. PNG. C: Keglsugl sawmill, Kairo & Streimann 35773 (BFC, BISH, BO, CANB, K, L, PNH, SING). EH: Chimbu Divide, Floyd & Mckee NGF 6709 (LAE); Mt Otto, Brass 30854 (L).

Distribution. Known only from the high montane forests of Eastern Highlands and Chimbu provinces.

Distinguishing Features. Plants densely pubescent on all parts (twigs, leaves, inflorescence axis, flowers); pedicels 1.5–2 cm long; corolla tube over 10 mm long.

Remarks. This species can be clearly distinguished from other species in the genus by the pedicels being over 1 cm long.

Psychotria melanocarpa Merrill & Perry, J. Arnold Arbor. 27: 211 (1946). Figs. 74, 75.—Type: Brass 7090 (A, holotype; LAE, isotype), PNG: WESTERN PROV: Palmer Rd 2 mi below junction with Black Riv, in secondary forest in an old garden site on a ridge, at 100 m, 1936.

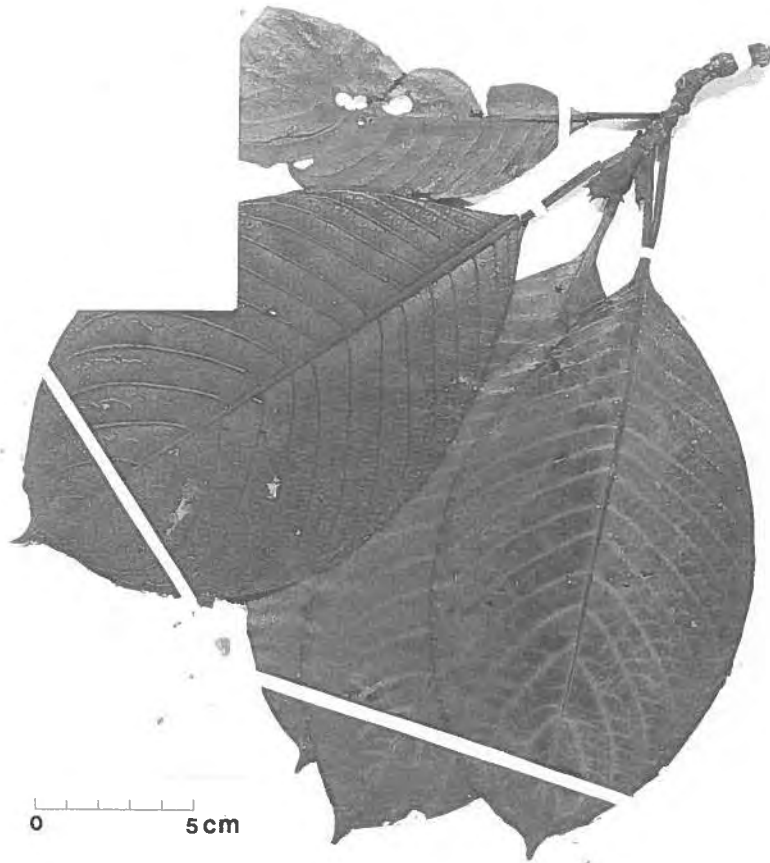
Trees or shrubs. Stipules valvate, 1.5–2 cm long, pubescent, cleft. Leaves with petioles 3–5.5 cm long; blades coriaceous, pubescent below, obovate-elliptic, 4 × 10–12.8 × 25 cm, lateral veins 10–17 per side, tertiary venation very conspicuous below, entire blade drying a reddish brown, at apex abruptly acuminate, at base obtuse, truncate to shortly decurrent. Inflorescence immature. Mature flowers unknown; calyx and hypanthium about 2.5 mm long, tube about 1 mm long. Infructescence 10–12 cm long, about 10 cm wide, with 1 main axis, peduncle about 3 cm long, with 2–3 primary nodes with verticillate branching at each. Fruit black at maturity, 12 mm or more in length. Pyrenes unavailable for study, reported to have ruminant endosperm.

This species is not represented by any new material in LAE. It is quite possible that no botanical collections have been made on the Upper Fly since the Archbold Fly River Expedition of 1936.

Other Specimens Examined. PNG. W: Balimo S.P., Brass 6735 (BM, BO, L, LAE).

Remarks. This species by its pubescence and dry leaf color bears a strong resemblance to *P. hentyi* of Morobe Province. Its flowers, however, are not as clearly aggregated into globose heads as they are in the latter species.

Plants of Papua,
1951-1952, 1953-1954, 1955-1956



Plants of Papua (British New Guinea, collected by
1951-1952, 1953-1954, 1955-1956) River Expedition of the American Museum
of Natural History, Mr. Richard Archibald, Leader.
Distributed by the Arnold Arboretum
L. J. Bress

Fig. 74. *Psychotria melanocarpa*. Brass 7090 (A, holotype).

SOHMER: NEW GUINEA AREA PSYCHOTRIA

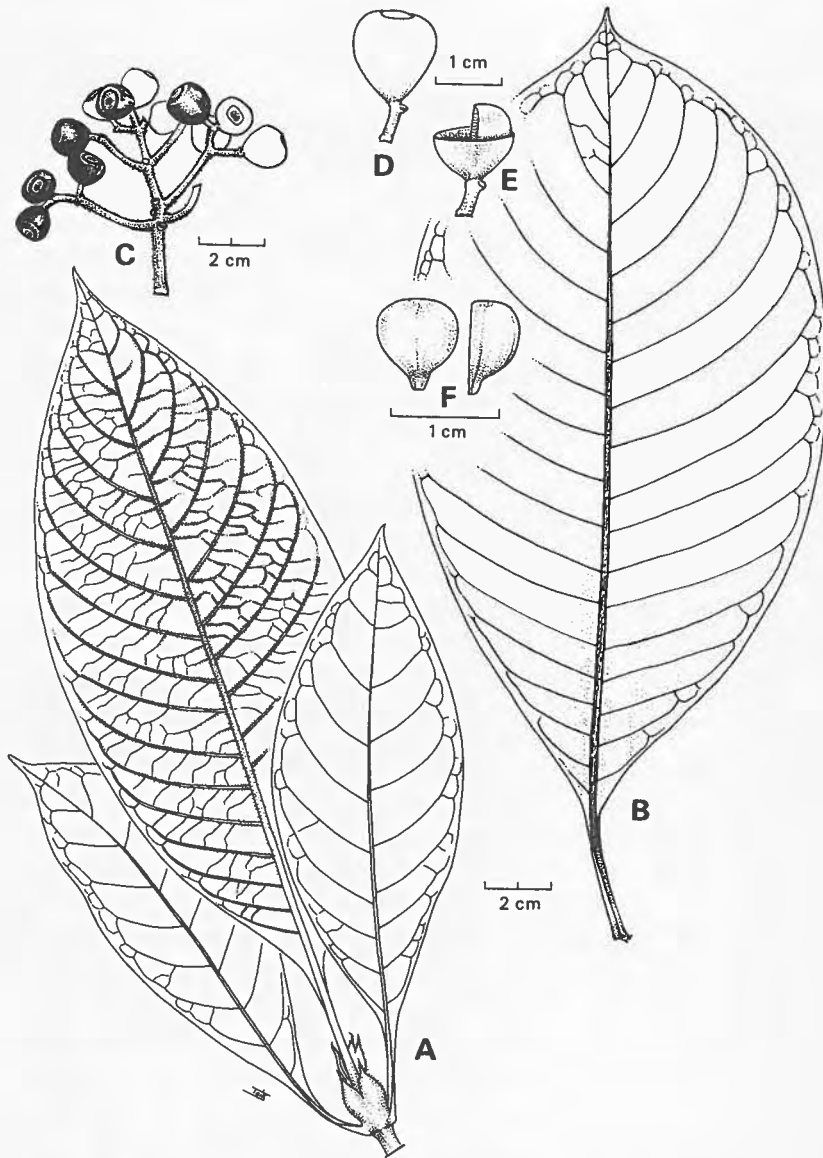


Fig. 75. *Psychotria melanocarpa*. Brass 6735 (LAE): A, habit of sterile branch; B, large leaf; C, inflorescence in fruit; D, fruit; E, fruit with $\frac{1}{2}$ the exocarp removed and with 1 pyrene shown; F, dorsal and lateral views of pyrene.

Psychotria membranifolia Bartl. ex DC., Prodrumus 4: 522 (1830), sensu Merrill & Perry, J. Arnold Arbor. 27: 203 (1946). Fig. 76.—Type: *Haenke s.n.* (PR, holotype and isotype), PHILIPPINES: Sorsogon Prov.

Glabrous shrubs or small trees 1–3 m high (to 12 m?). Stipules fused to each other to form a tube or cylinder, ovate, small, less than 5 mm long, apex a short, stiff point. Leaves with petioles 0.5–3 mm long; blades yellow-green (in vivo somewhat fleshy), delicate, membranaceous (always), smooth and glabrous, 3.5×6.5 – 2.2×9 (– 7.5×22.5), lateral veins 6–10 per side, apex obtuse to acute (rarely short acuminate), base obtuse to acute. Inflorescence delicate, usually 1 slender main axis branching $\frac{1}{2}$ – $\frac{2}{3}$ from base, the peduncle rarely over 3 cm long, branching opposite, or, more usually, verticillate, or inflorescence branching from near base of the inflorescence, the branches usually short but sometimes very long and delicate, lax, glabrous throughout. Flowers 5-merous, dimorphic, on pedicels 1–10 mm long; calyx and hypanthium together 1–1.5 mm long, truncate or lobes acute; corolla white to yellowish or orange-white, tube squat or narrow, somewhat inflated towards the summit, 3–4 mm long, hairy within, lobes ovate-acute, about 1–2 mm long, reflexed at anthesis; anthers about 1.5 mm long in thrums. Fruit red at maturity, ovoid-globose, 4–6 mm long. Pyrenes somewhat angular, basically triangular in cross section, endosperm smooth, not ruminant.

Other Specimens Examined. IJ. Radjah Ampat Dist: Batanta I, *van Royen* 3270 (BO, LAE). PNG. M: Aiome St, *Womersley* NGF 24748 (LAE); Merap Vill, *Pullen* 1194 (CANB, LAE). Mo: mid Waria Val, *Frodin* NGF 26439 (LAE); Waiu Bay, *Gillison et al.* NGF 25637 (LAE). N: btwn Patikiari & Gwaiari villages, *Hoogland* 3637 (CANB, L, LAE). W: lower Fly Riv, opp. Sturt I: *Brass* 8051 (BO, LAE); btwn Morehead & Wassi Kussa, *Brass* 8463 (BM, BO, L, LAE). G: junction of Kapau–Tauri rivers, *Schodde & Craven* 4710 (K, LAE), 4713 (LAE). Ce: Port Moresby area, *Gebo* UPNG 263 (LAE), *Heyliger* 73-9 (UPNG); Cape Rodney, Mori Riv, *Paijmans* 452 (LAE), *Pullen* 8107 (CANB, L, LAE); Gauguri, *Rau* 217 (K, L, LAE); Koulupu, Hula, *Holdsworth* UPNG 777 (UPNG); Kabuna, *Brass* 5588 (A, BO); 11.2 km W of Kanosia Plantation, *Darbyshire* 633 (CANB, LAE); SE of Vanuamai Vill, *Kwapena* WLL 1066 (UPNG); Kairuku S.P., *Pullen* 3542 (CANB, LAE); Laloki Riv, *Gebo* 263 (UPNG), *Womersley* NGF 4513 (BFC, LAE); Veiya, *Carr* 11708 (CANB, L), 11709 (L, SING). MB: Harada Riv below Waigani Plantation, *Henty* NGF 20512 (CANB, L, LAE); Biniguni–Maneau track, *Streimann* NGF 28812 (LAE); Cape Vogel Pen, Menapi, *Brass* 21820 (LAE); Gwariu Riv, *Brass* 23801 (L, LAE); Fergusson I, *Brass* 27097 (LAE).

SOHMER: NEW GUINEA AREA PSYCHOTRIA

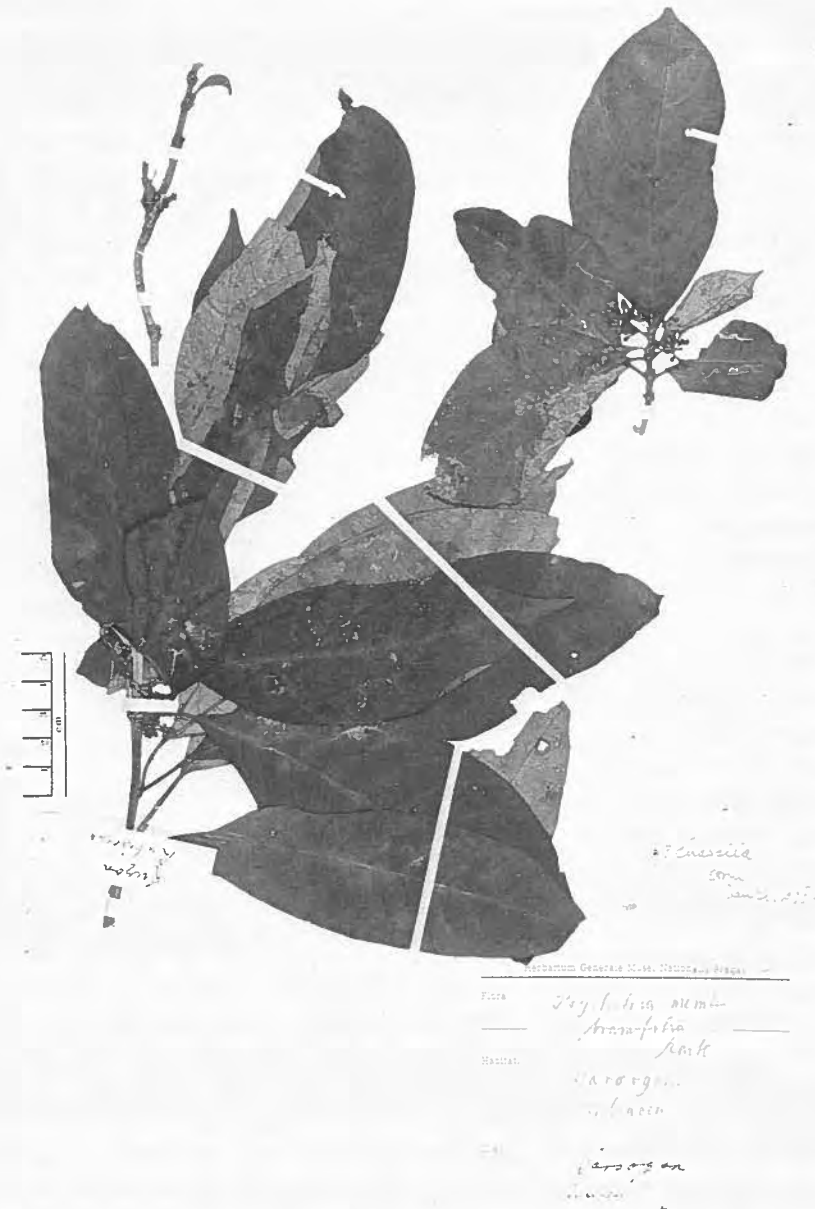


Fig. 76. *Psychotria membranifolia*. Haenke s.n. (PR, holotype).

Distribution. Lowland rain forests from sea level to ca. 300 m elevation (mostly lower than 50 m).

Distinguishing Features. Leaf blades very thin, delicate, membranaceous; inflorescence small, delicate, branches sometimes very long and lax; fruit red; pyrenes triangular in cross section.

Remarks. This taxon as represented in New Guinea is not well understood. I have thus far not been able to clearly determine whether the collections cited here truly represent 1 taxon. I have followed Merrill & Perry (1946) in referring specimens cited above to this species. The taxon is extremely variable and basically held together by the delicate, membranaceous, yellow-green leaves, although there are similarities in other plant features. Morphologically the taxon shares some superficial features with *P. leptothyrsa*. The Pullen 1194 specimen cited above was from a tree reported to have been 15 m tall. If true, this is 5 to 15× the size of the other individuals of this taxon in the herbarium.

Since studying the New Guinea material I have had the opportunity to study Philippine material related to this taxon and have also examined the type material at PR. Dr. Jiri Sojak, head curator at PR (who made my visit to his institution possible), stated that the type material in his care is indeed the material Bartling studied and is, therefore, original type material. The sheet identified by Sojak as containing Bartling's annotation is cited here as the holotype. My work with this taxon in the Philippines has merely added to the confusion as I now believe that the taxon as understood up to this time in the Philippines represents a number of taxa. The entire complex will have to be subjected to an in-depth study.

***Psychotria merrilliana* Sohmer, nom. nov. Fig. 77.**

Psychotria trichostoma var. *macrophylla* Merrill & Perry, J. Arnold Arbor. 27: 214 (1946).—

Type: *Kajewski* 2203 (A, lectotype, here designated, and isolectotype), PNG: NORTH SOLOMONS PROV: Bougainville: Marmarromino, in rain forest, at 50 m, 30 Sep 1930.

Trees 1.5–6(–10?) m high. Stipules calyptrate, to 2 cm, young leaves and flowers probably emerging via a lateral, longitudinal slit. Leaves with petioles 1.2–4.8 cm long; blades membranaceous, chartaceous, or coriaceous, broadly ovate-elliptic to obovate-elliptic, 9 × 20–20 × 36 cm, lateral veins 9–14 per side, apex short acute or acuminate, base acute-cuneate. Inflorescence with very short, stout main axis with internodes so compressed they equal 4–10 branches appearing to arise from the same point, branches 1–4.5 cm long, sometimes the branches

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Fig. 77. *Psychotria merrilliana*. Kajewski 2203 (A, lectotype).

terminated by another cluster of branches, all branches terminated by clusters of cymules, infrequently the main axis elongated to as much as 5 cm before branching, more often very short and appearing as the top of the stem, with more than 30 flowers per inflorescence. Flowers 5-merous, dimorphic(?), on very short pedicels; calyx and hypanthium only 1 mm long, summit truncate; corolla white to yellowish white, thin in texture, the tube slightly expanded towards summit, about 1.5 mm long, hairy within, the lobes acute-ovate, about 1 mm long, reflexed at anthesis. Fruit red at maturity, globose, about 5 mm long. Pyrenes without ridges or ribs, smooth at back, with a notch on the ventral surface, the endosperm smooth, not ruminant.

The type collection was noted as being a common tree up to 10 m high. There were 2 specimens from A, one with flowers, the other with fruit. The authors had not designated a particular sheet as holotype; I have, therefore, designated the specimen possessing flowers as lectotype.

Other Specimens Examined. PNG. NS: Pavairi, *Lavarack & Ridsdale* NGF 31048 (LAE), *Ridsdale & Lavarack* NGF 30587 (LAE); Korowai Hills, *van Royen* NGF 16375 (LAE); SI: N Choiseul I, *Gafui & collectors* BSIP 17,543 (LAE); N Central Choiseul, *Gafui & collectors* BSIP 18672 (LAE); W Choiseul, *Gafui & collectors* BSIP 18883 (LAE); E Choiseul, *Whitmore's collectors* BSIP 5281 (LAE); SE of Choiseul, *Rob Roy I, Whitmore's collectors* BSIP 5327 (LAE); SE Kolombangara I, *Mauriasi & collectors* BSIP 9777 (LAE); NW Santa Ysabel I, *Beer's collectors* BSIP 7767 (LAE); SW Santa Ysabel I, *Beer's collectors* BSIP 7277 (LAE); Santa Ysabel, *Mauriasi & collectors* BSIP 16018 (LAE), *Susui* BSIP 8345 (LAE); Guadalcanal: W of Balanga, *Boraule & collectors* BSIP 8390 (LAE); Wagina I, *Whitmore's collectors* BSIP 5429 (LAE), BSIP 6165 (LAE).

Distribution. On Bougainville and throughout the Solomon Islands from sea level to ca. 900 m (mostly below 100 m).

Distinguishing Features. Stipules calyprate; leaf blades often very large, broadly ovate-elliptic or obovate-elliptic, 20–36 cm long; inflorescence umbelloid; flowers minute, corolla tube about 1.5 mm long; fruit red at maturity, about 5 mm long.

Remarks. I have little doubt that this is a distinct species, as suggested by Merrill & Perry. It is closely related to *P. trichostoma* Merrill & Perry. I have provided a new name for this taxon, as the name *P. macrophylla* has been preempted for another species in the genus.

Psychotria micralabastra (Lauterbach & Schumann) Valeton, Bot. Jahrb. 61: 88 (1927). Figs. 78, 79.

Grumilia micralabastra Lauterbach & Schumann, Fl. Deutsch. Schützgeb. Südsee, p. 580 (1901).—Type: *Bamler II 28* (not seen), PNG: Kaiser Wilhelmsland: [Morobe Prov.] Sattelberg, 1899.

Psychotria eucosta Valeton, Bot. Jahrb. 61: 102 (1927).—Type: *Ledermann 10037* (L, lectotype, here designated), PNG: Sepik Territory, Lordberg, 1,000 m.

Trees 5–15(–26?) m high, glabrous. Stipules valvate, smooth and glabrous, ovate-oblong to lanceolate-oblong, apex acute or obtuse. Leaves with petioles 0.6–3.5 cm long; blades chartaceous to semicoriaceous, glabrous, elliptic to ovate-elliptic, 2.5 × 7–6 × 16 cm, lateral veins 8–12 per side, apex acute to short-acuminate, base acute to obtuse. Inflorescence often white at anthesis, usually trichotomous, with main axis to 17 cm long, unbranched for $\frac{1}{3}$ – $\frac{1}{2}$ its length from base, and usually with 2 smaller but similar branches direct from base, 2 or 3 primary nodes with opposite or verticillate branching, the ultimate branches with 1 or 2 cymules, the axes generally covered with a minute pubescence. Flowers minute, 4- or 5-merous, homomorphic(?), essentially sessile or on very short pedicels; hypanthium and calyx 1–1.2 mm long, lobes small, acute, often covered with a minute and very fine pubescence; corolla white, the tube glabrous within, less than 1 mm long, the lobes ovate-obtuse, equaling the tube, reflexed at anthesis; anthers less than 0.2 mm long; stigmas at about same level as anthers. Fruit red when ripe, obovoid-globose, 3–5 mm long. Pyrenes smooth on surface, endosperm prominently ruminant.

Valeton, in his 1927 treatment, lists several collections: *Hellwig 487* (Finschhafen), *Schlechter 16445* (Wobbe), and *Schlechter 17084* (Ibo-Gebirge). Should the type collection be lost, one of the latter may serve as neotype.

Other Specimens Examined. IJ: Vogelkop Pen, *van Royen & Sleumer 7749* (BO, LAE); Lake Ajamaru, Tubun, *Vink BW 15351* (BO, K, L, LAE); SW of Lake Sentani, *Kalkman BW 6214* (CANB, LAE); Fak-Fak, Adi I, *Moll BW 11524* (L, LAE); Wandammen Pen: Wondiwoi Mts, *Schram BW 10646* (BISH, BO, LAE); mouth of Tami Riv, *Kalkman BW 3382* (BO, L, LAE, PNH, SING). PNG. WS: Pull Riv, nr Ossima airstrip, *Katik NGF 46679* (BISH, BO, CANB, K, LAE, PNH); Ossima Vill, *Sayers NGF 18002* (BO, CANB, K, L, LAE, SING). ES: W of Wewak, Manihok Val, *Pullen 1364* (CANB, LAE); W of Wewak, *Robbins 2069* (CANB, LAE). M: SE of Brahma C. Mission High School, *Katik LAE 74731* (L, LAE, UPNG). Mo: Oomsis Crk, *Floyd 5568* (CANB), *Hartley TGH 10499* (A, C, CANB, L, LAE); Oomsis logging area, *Brass 29286* (BO, K, L, LAE, NY), *Henty NGF 10675* (BO, CANB, L, LAE, SING), *11939* (BO, CANB,

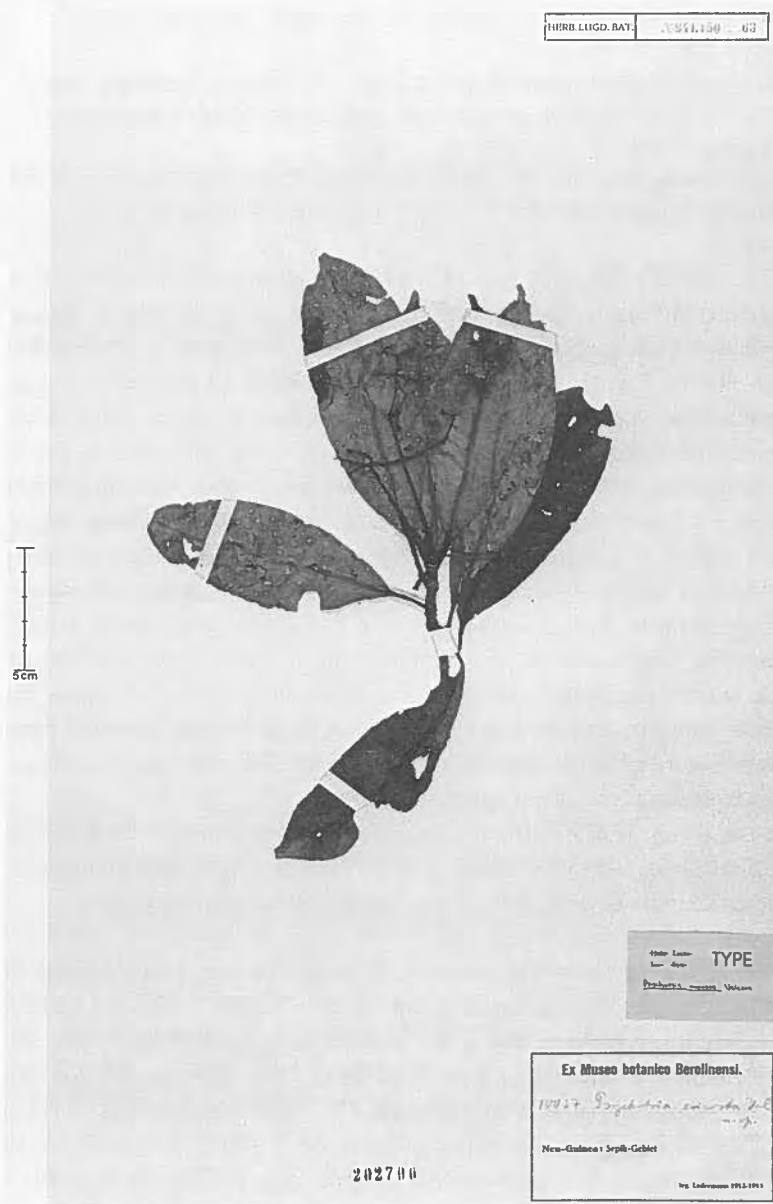


Fig. 78. *Psychotria eucosta* (= *P. micralabastra*). Ledermann 10037 (L, lectotype).

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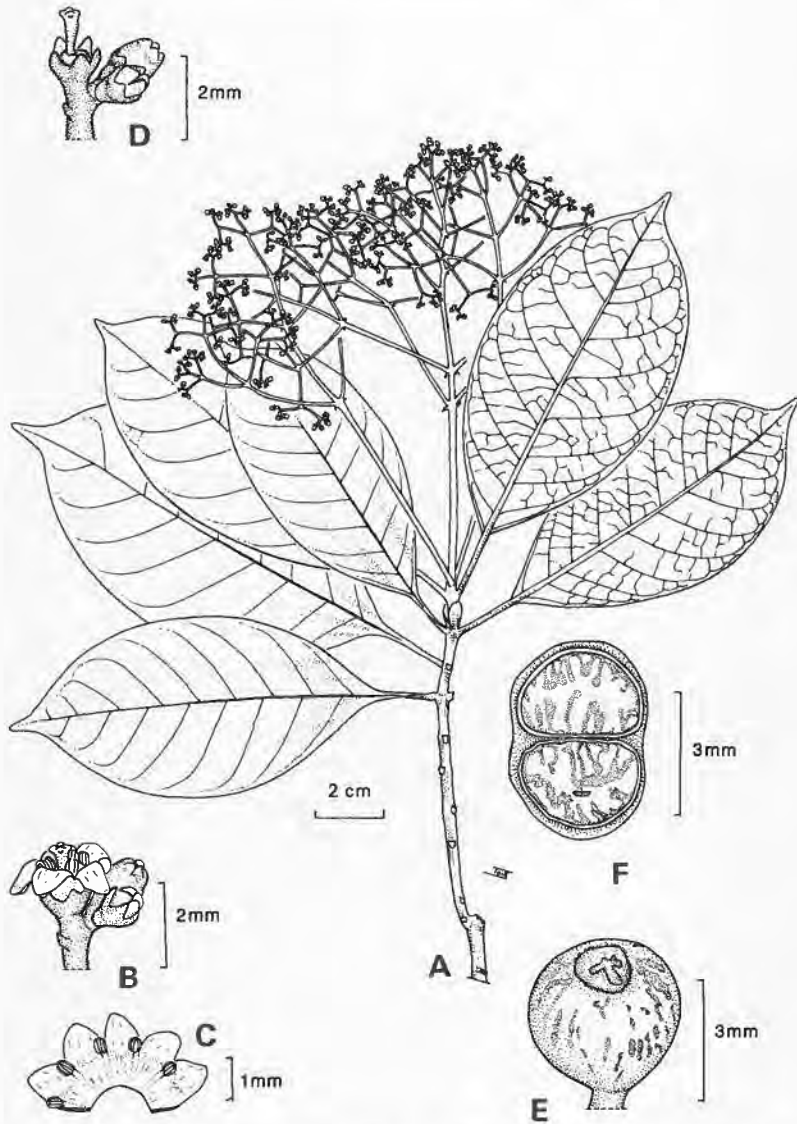


Fig. 79. *Psychotria micralabastra*. A, Henty NGF 14702 (LAE): habit. Robbins 2069 (LAE): B, cymule with 1 open flower; C, corolla split longitudinally and flattened; D, cymule with 1 flower with corolla removed showing pistil; E, fruit; F, fruit x.s. with conspicuously ruminant endosperm.

BULLETIN 1: BOTANY

K, L, SING), *NGF 14702* (CANB, K, LAE), *Millar NGF 23307* (CANB, L, LAE, SING), *Thorne & Henty 27536* (BISH, K, LAE), *van Royen NGF 16477* (BO, K, L, LAE), *Womersley NGF 19404* (BO, K, L, LAE, PNH, SING); Lae, *Otiolo NGF 16780* (BISH, BO, CANB, K, LAE, PNH, SING), *Vickery 991* (L); Busu Riv, NE of Lae, *Thorne & Henty 27470* (L); Gabensis, *Floyd NGF 7230* (BFC, BO, CANB, K, L, LAE, SING); Miama Vill, *Ridsdale NGF 31687* (BISH, BO, CANB, K, L, LAE, PNH, SING); nr Kui, Paiawa logging area, *Gillison NGF 22499* (BISH, CANB, L, LAE, PNH, SING); Kui, *Ridsdale NGF 31651* (K, LAE); Wareo, *Clemens & Clemens 1779* (L); Notter Bay logging area, *Croft & Lelean LAE 68572* (BISH, LAE); Zumbde I, *Streimann & Gillison NGF 39440* (BFC, K, LAE); WNB: Airagilpua, *Frodin NGF 26322* (BO, L, LAE). NI: N Schleinitz Range, S of Logagon Vill, *Croft & Lelean LAE 65620* (CANB, K, LAE). G: above Purari Riv 63 km from Baimuru, *Croft et al. LAE 61167* (BISH, CANB, K, LAE, PNH). Ce: Subitana, *Frodin UPNG 794* (K, L, LAE, UPNG). MB: Kaipu, nr Kaporika, *Henty NGF 16979* (BO, CANB, K, LAE, SING); E of Wapona, *Saunders 176* (CANB, K, L, LAE); Kwagira Riv, *Brass 23901* (L, LAE), *24018* (L, LAE); Fergusson I: nr Waiavana Riv, *Henty & Lelean NGF 49948* (BISH, LAE). Kaiser-Wilhelmsland, *Schlechter 17238* (BM); Kani-Gebirges, *Schlechter 17237* (BM, C, L, S); Ibo-Gebirges, *Schlechter 17084* (BM, C, L, S); Waldern von Wobbe, *Schlechter 16445* (A, BM, C, L, S).

Distribution. Lowland rain forests throughout much of Papuaia from sea level to ca. 840 m.

Distinguishing Features. Leaf blades less than 6 cm long; inflorescence usually trichotomous with 2 small axes from base of main axis; flowers very small, the corolla tube glabrous within, less than 1 mm long; fruit less than 5 mm long.

Remarks. This species is closely related to *P. chrysantha* and *P. butibumensis*. The flowers, however, are usually white, not yellow. As in *P. chrysantha*, the size of the flowers is inversely proportional to the size of the plants themselves; if label information is correct, the species can reach a height of over 25 m and most are over 10 m. I have little doubt that these specimens represent the taxon described by Lauterbach & Schumann.

I have seen a surviving specimen of the Ledermann collection, cited by Valetton for *P. eucosta*, at the Rijksherbarium in Leiden. Although the elevation at which the collection was made does not match the habitat of most individuals of *P. micralabastra*, the trichotomous nature of the inflorescence, as well as the general aspect of the material, convinces me that it is part of the same taxon.

- Psychotria micrococca* (Lauterbach & Schumann) Valetton, Bot. Jahrb. 61: 89 (1927). Figs. 80, 81.—Type: *Lauterbach* 987 (WRSL, neotype), PNG: MADANG PROV: Gogol Riv: middle reaches. Specimen cited by Valetton [Bot. Jahrb. 61: 89 (1927)] in his treatment of this species.
- Grumilea micrococca* Lauterbach & Schumann, Fl. Deutsch. Schützgeb. Südsee, p. 581 (1901).—Type: *Lauterbach* 3134 (not seen), PNG: MADANG PROV: Ramu Riv, at 90 m, 25 Oct 1899.
- Psychotria puberula* Schumann, in Schumann & Hollrung, Fl. Kaiser Wilhelmsland 135 (1889), non Blume.—Type: *Hollrung* 852 (K, lectotype, here designated), PNG: WEST SEPIK PROV: Sepik Riv.
- Psychotria pubera* Valetton, Bot. Jahrb. 61: 96 (1927), as nom. nov.
- Grumilea pubera* (Schumann) Lauterbach & Schumann, Fl. Deutsch. Schützgeb. Südsee, p. 580 (1901).—Same type as above.
- Psychotria schumannii* Valetton, Bot. Jahrb. 61: 98 (1927).—Type: *Schlechter* 18942 (A, lectotype, here designated; BM, C, K, L, LAE, S, isolectotypes), PNG: "Kaiser-Wilhelmsland: Wäldern bei Knemare," at 130 m, 11 Dec 1908. According to one source, what is now spelled Kinemare is near the Saki Riv (itself unlisted in the Gazetteer).
- Psychotria scratchleyi* Wernham, J. Bot. (London) 56: 134 (1918).—Type: *Forbes s.n.* 1885-6 (BM, lectotype, here designated), PNG: CENTRAL PROV: Sogeri Dist.
- Psychotria weinlandii* Schumann, in Lauterbach & Schumann, Nachträge, Fl. Deutsch. Schützgeb. Südsee, p. 397 (1905).—Type: *Weinland* 298 (SING, lectotype, here designated), PNG: "Kaiser Wilhelmsland, Prialim."

Small trees or shrubs 1.5–4(–8) m tall, often profusely branched, glabrous or variously pubescent; young stems green with numerous white lenticels. Stipules valvate, thick at base and center, thin toward the margins and ciliate, ovate to lanceolate, 0.5–1.2 cm long, apex acute or acuminate, rarely cleft. Leaves glabrous or variously pubescent, with petioles 0.5–3.5 cm long; blades thinly coriaceous, elliptic to obovate, (1.5 × 5.5)–2.3 × 7–9 × 20 cm, lateral veins 7–14 per side, apex acute, acuminate, or mucronate. Inflorescence usually white throughout, or at least on tertiary branches, conspicuous, longer than the subtending leaves, 10–30 (sometimes less than 8) cm long, the axis usually unbranched $\frac{1}{2}$ – $\frac{2}{3}$ of the length from the base, 2–5 primary nodes with verticillate or opposite branching at each, the tertiary branches entirely dichotomous creating a spreading inflorescence. Flowers 5-merous, dimorphic, covered throughout by minute hairs or glabrous, on pedicels 1–2 mm long; hypanthium about 0.8 mm long; calyx tube minute, lobes acute, about 0.2 mm long; corolla white, tube 2–2.5 mm long, hairy within, lobes ovate-subulate, 1–2 mm long, rotate at anthesis; anthers of pin flowers about 0.2 mm long; pistil with ovary globose, 0.3 mm long, style to 4 mm long in pin flowers. Fruit grayish white while immature becoming pure

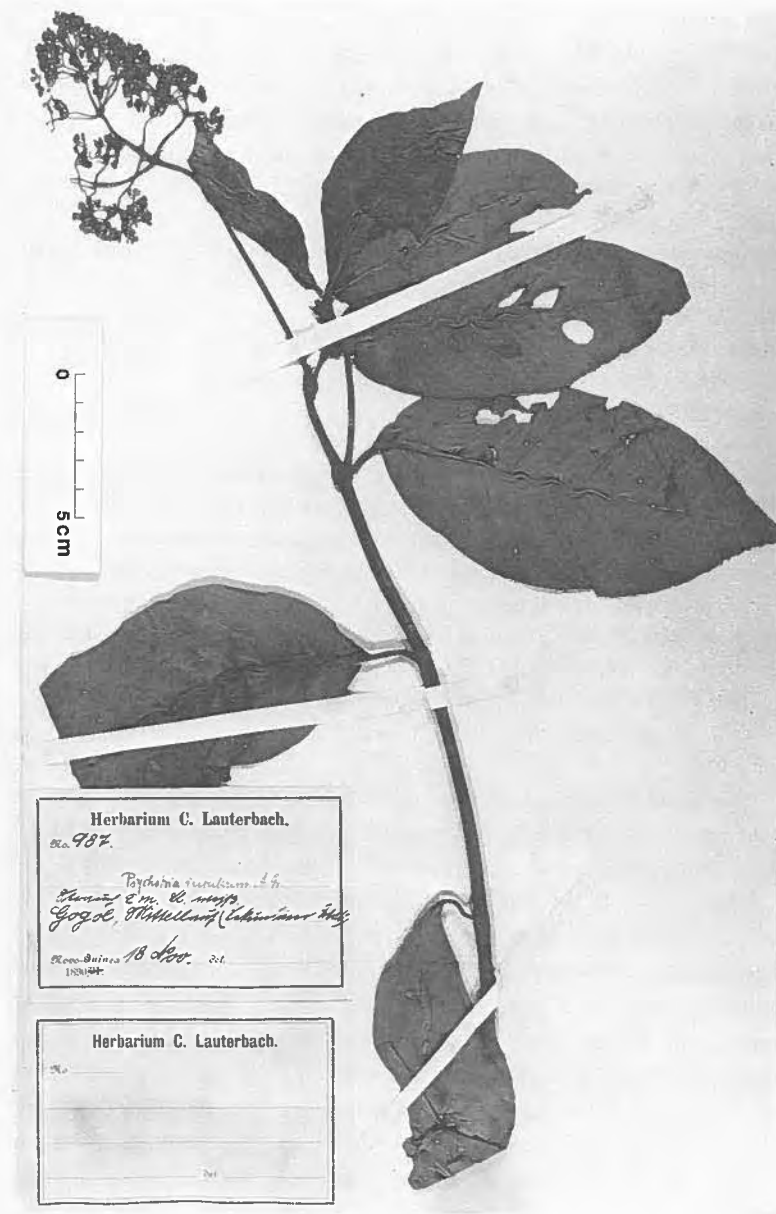


Fig. 80. *Psychotria micrococca*. Lauterbach 987 (WRSL, neotype).

SOHMER: NEW GUINEA AREA PSYCHOTRIA

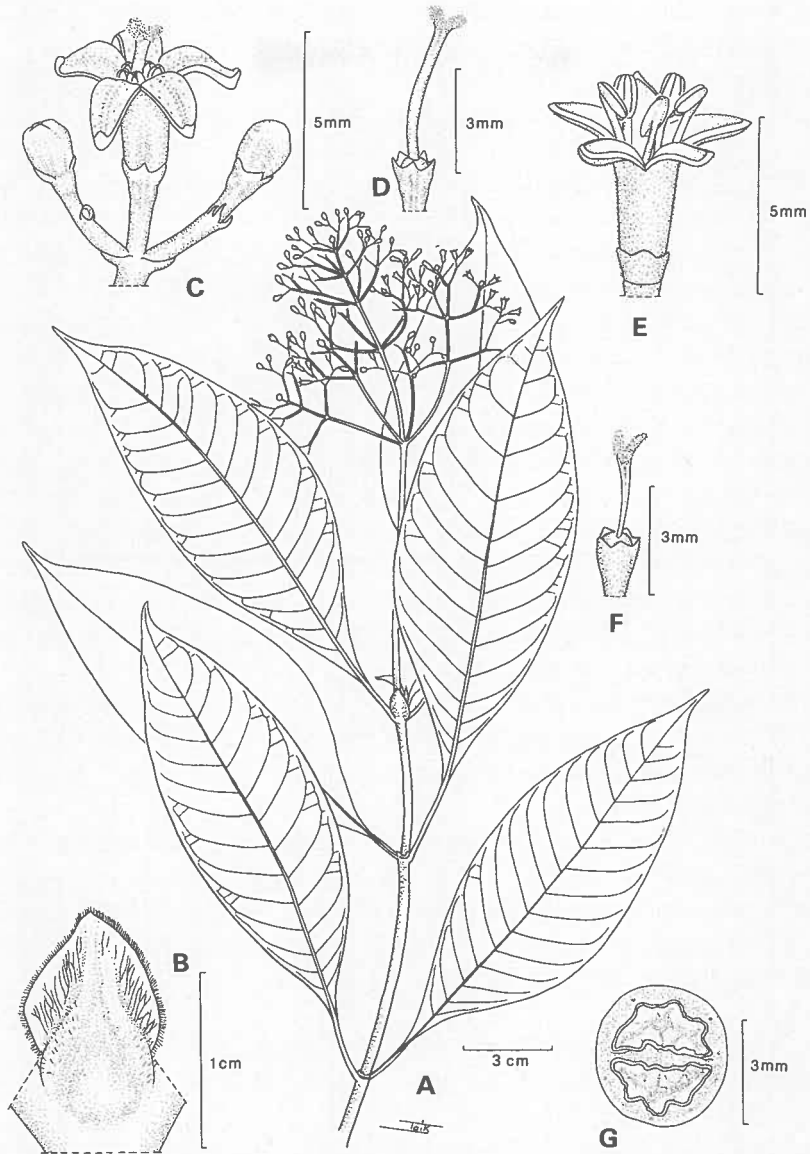


Fig. 81. *Psychotria micrococca*. A-D, *Sohmer & Katik LAE 75156* (LAE): A, habit of flowering branch; B, stipules; C, cymule with 1 open pin flower and 2 buds; D, pin flower with corolla removed. E-G, *Sohmer & Katik LAE 75016* (LAE): E, thrum flower; F, thrum flower with corolla removed; G, fruit x.s. showing the 2 pyrenes with ruminant endosperm.

white and succulent, globose, 3.5–4 mm in diameter. Pyrenes without ridges on back, endosperm ruminant.

I have examined type material for *Psychotria schumannii* and believe I have a clear understanding of that taxon. I have also examined the type specimen of *P. pubera* and believe it belongs to the same assemblage. *Psychotria weinlandii* also belongs here. I have not been able to examine the original type material of *Psychotria micrococca*. The taxonomic decisions I have reached herein, therefore, are based on my comprehension of Papuan *Psychotria* and deductive reasoning concerning the concepts of the former workers in Papuan *Psychotria*. Valeton (op. cit.), for example, reduced *P. pubera* to *P. micrococca* and at the same time synonymized *Grumilea pubera*, which is based on the same type. In his discussion for *P. micrococca* he states (Valeton 1927: 90): "Wenn man von der Trockenfarbe absieht (braun bei *P. schumannii*, schieferfarbig bei *P. micrococca*), ist es schwierig, scharfe Grenzen zwischen beiden Arten festzustellen. . . ." He cites, among other specimens, *Lauterbach* 987 from the Gogol Riv. I have examined this specimen; it belongs to the same taxon and is the specimen I have designated as neotype. Furthermore, in his treatment of *P. pubera* (why he proceeded to treat *P. pubera* as independent after reducing it I do not understand, since he cites *Hollrung* 852 for both) he states (Valeton, op. cit.): "Die Art scheint mir kaum von *P. micrococca* zu trennen."

In his treatment of *P. schumannii*, Valeton (op. cit.) states, after some discussion: "In dieser Hinsicht halten sie die Mitte zwischen *P. micrococca* und *P. weinlandii*, welche beide Arten übrigens vielleicht durch Übergänge mit *P. schumannii* verbunden sind."

Finally, in his treatment of *P. weinlandii*, Valeton (1927) refers to a *Lauterbach* specimen (*Lauterbach* 384) that I have also examined. This specimen is, in my opinion, a good representative of this taxon. The logic follows, if one can depend on Valeton's judgment, that we are dealing with the same taxon in all of this, and the earliest name available for it is *P. micrococca*.

Other Specimens Examined. IJ. Djayapura (Hollandia), *Kostermans & Soegeng* 27 (BO, L); Hollandia, *Meyer Drees* 236 (BO); Lake Sentani, *Iwanggin* BW 5274 (CANB, LAE), *Schrijn* BW 5405 (BO, CANB, K, LAE, PNH); Cape Tenah Merah, *van Royen & Sleumer* 6499 (BO); no further data, *Docters van Leeuwen* 9614 (BO). PNG. WS: Wagu, *Hoogland & Craven* 10491 (LAE); Dagua, *Pulsford & Floyd* 5445 (BO, CANB, L, LAE); 20 km W of Bewani Sta, *Sohmer* LAE 73792 (BISH). ES: Manipoku, ca. 6 km SW of Brikitti, *Wiakabu & A.M.C.* LAE 73517 (BISH), LAE 73518 (BISH); Sepik, without further data, *Ledermann* 6919 (SING), 8649 (SING). M: lower Ramu–Aritau area, *Pullen* 963 (CANB, LAE); Aiome–Annanberg track, *Robbins* 1463 (CANB); Walium Patrol Post,

Sohmer & Katik LAE 75092 (LAE), LAE 75100 (LAE), LAE 75102 (LAE), LAE 75109 (LAE), LAE 75124 (BISH, BO, LAE), LAE 75134 (LAE); S bank of Madang–Usino Rd nr Tapo Riv, *Sohmer & Katik* LAE 75156 (LAE), LAE 75157 (LAE); Usino, *Foreman et al.* NGF 45893 (LAE); Gogol Riv Val, *Sohmer & Katik* LAE 75166 (BISH, BO, L, LAE); Madang–Usino Hwy on N bank of Gogol Riv, *Sohmer & Katik* LAE 75193 (LAE); Amaimon Vill, *Taylor & Saunders* 575 (LAE), Baisarik Vill, *Wiakabu et al.* LAE 70349 (LAE); Kar Kar I, *Mann & Vandenberg* NGF 43405 (BO, CANB, K, LAE), *Ridsdale* NGF 33966 (K, LAE); Mo: nr Lae, Yalu, *Floyd* NGF 5782 (LAE); above Yalu Vill, *Hartley* TGH 9963 (BO, CANB, L, LAE, SING); Lae, *White et al.* NGF 1728 (BO, K, LAE); Oomsis, *Brass* 29316 (LAE), *White* NGF 10182 (BO, LAE, SING); Gabensis Crk, *Floyd* NGF 7220 (BO, LAE); Gabensis, *Floyd* NGF 7264 (BFC, BO, CANB, L, LAE, SING); Buso forestry camp, *Conn et al.* 278 (BFC, K, L); Markham Val, Umi Riv, *Brass* 32524 (BO, K, LAE, NY); Leron Riv, *Hartley* 10223 (A, CANB, L, LAE, NY); Erap, *Henty* NGF 10670 (BO, CANB, L, LAE, SING); Markham Val, *Brass* 32511 (K, LAE, NY); Kajabit Mission, *Clemens* 10632a (A); Dengalu, *Millar* NGF 23064 (BO, K, L, LAE, SING); S of Mumeng, *Hartley* 9776 (C, CANB, L, LAE); Bulolo, *Bridgland* NGF 2629 (LAE); Wau, *unknown collector* NGF BMF-S-20 (LAE), *White* NGF 1464 (LAE); Wau–Salamua Rd, *Womersley & Millar* NGF 7869 (BO, K, L, LAE, SING); Finschhafen, *Lauterbach* 384 (WRSL), *Henty & Katik* NGF 49787 (LAE); Ibekippo, Bonga, *Lauterbach* 770 (WRSL). N: Musa Riv, Dove Vill, *Gillison* NGF 22312 (LAE). MB: N Sagarai Val, *Henty* NGF 16822 (BO, CANB, LAE, SING), NGF 16901 (K, LAE); N of Nowata airstrip, *Kanis* 1151 (LAE); WNW of Biniguni airstrip, *Pullen* 8465 (BO, CANB, K, L, LAE); Mt Suckling, *Katik* 46959 (LAE), NGF 46961 (K, LAE); hills behind Koporika, *Larivita & Katik* LAE 67150 (K, L); Normanby I, *Benjamin* LAE 67890 (L, LAE, UPNG), *Brass* 25532 (K, L, LAE), 25554 (L, LAE), 25605 (L, LAE, PNH, S), 25914 (L), *Womersley* NGF 8653 (K, LAE); Sudest I, *Brass* 27755 (LAE), 27885 (LAE), 27898 (K, LAE), *Sohmer* LAE 75002 (LAE), LAE 75008 (LAE), LAE 75013 (LAE), LAE 75014 (LAE), LAE 75015 (LAE), LAE 75016 (LAE), LAE 75033 (LAE); Misima I, *Brass* 27405 (K, LAE, PNH, S). Ce: Sogeri Dist: nr Boridi, *Carr* 14650 (L, LAE, NY, SING); Sogeri Dist, *Forbes s.n.* (BM); Brown Riv, Lorama Crk, *Gillison* NGF 22128 (BO, LAE, PNH); Varirata National Park, *Nagari* TN 18 (UPNG). WNB: Mt Ulawon, *Lelean & Stevens* LAE 51242 (LAE); Kilenge, *Ridsdale* NGF 30464 (K, LAE); Pirilongi Vill, *Sayers* NGF 21950 (K, LAE), NGF 21972 (K, LAE); Linga Linga, *Henty & Lelean* NGF 49500 (BISH, BO, K, LAE, PNH); Mt Penck, *Croft & Vinas* NGF 41347 (K, LAE, PNH); Mt Talawe, *Frodin* NGF 26820 (BO, CANB, L, LAE, NY, SING). ENB: Mengen Massif, *Stevens & Lelean* LAE 58750 (K, LAE); Lackit, *Katik & Ridsdale* NGF 38031 (L, LAE). NI: Hans Meyer Range, Taron, *Sands et al.* SANDS 1916 (CANB, L); Mussau

I, *Koie & Olsen 1186A* (C), 1299 (C); Dyaul I, *Koie & Olsen 1849* (C). Bismarck Archipelago, no further data, *Koie & Olsen 2342* (C, L). "New Guinea," without further data, *Lauterbach 72* (BO), 658 (K, WRS), *Schlechter 13827* (BO, WRS), 14232 (BO); "Kaiser-Wilhelmsland," *Nyman 18* (BM), *Schlechter 16992* (BISH, L, S, SING), 18870 (BM, K, S).

Distribution. Predominantly a lowland species, usually favoring drier, more exposed slopes of ridges and well-drained soils in lowland rain forests. It ranges from the northern part of Irian Jaya down along the north coast of Papua New Guinea and into New Britain and the Milne Bay Islands, from sea level to 1,800 m, but the vast majority of individuals are found below 300 m.

Distinguishing Features. Stipules entire or barely cleft above; leaf blades elliptic, usually well under 20 cm long, both ends acuminate; inflorescence white, conspicuous, usually glabrous or puberulent, usually longer than the subtending leaves; flowers with anthers only 0.2 mm long at anthesis; fruit white; endosperm ruminant.

Remarks. This is obviously, in terms of distribution, one of the most geographically widespread species of *Psychotria* in Papuasia. It forms, I believe, the core of a group of closely related taxa, some of which have been recognized as new in this revision. There are intergradations relating *P. micrococca* and *P. hollandiae*, for example. Nearly all other taxa with white or whitish inflorescences at anthesis, small flowers, small, white fruit, and ruminant endosperm probably are related directly or indirectly to this species. I suspect that its adaptation to drier, more exposed sites, such as ridges or disturbances in the forest, is probably the reason for its being so widespread. I also suspect that various taxa have radiated directly away from it during its evolutionary history. There are specimens from populations on the major islands of the Louisiade Archipelago that I have referred here but which probably constitute a different taxon not understood at present.

Usually, the fruit are numerous in a given inflorescence but not all mature at once. They ripen a few at a time and just prior to ripening rapidly turn pure white, soft and pulpy. The majority remain grayish greenish white, small and hard. This is probably a mechanism to ensure the dispersal of fruit over a long period of time.

Psychotria monopedicellata Sohmer, sp. nov. Fig. 82.—Type: *Sohmer et al. LAE 75395* (LAE, holotype), PNG: WEST NEW BRITAIN PROV: Talasea Dist: Garu Wildlife Management Area: track from road to base of Mt Gabuna, in

SOHMER: NEW GUINEA AREA PSYCHOTRIA

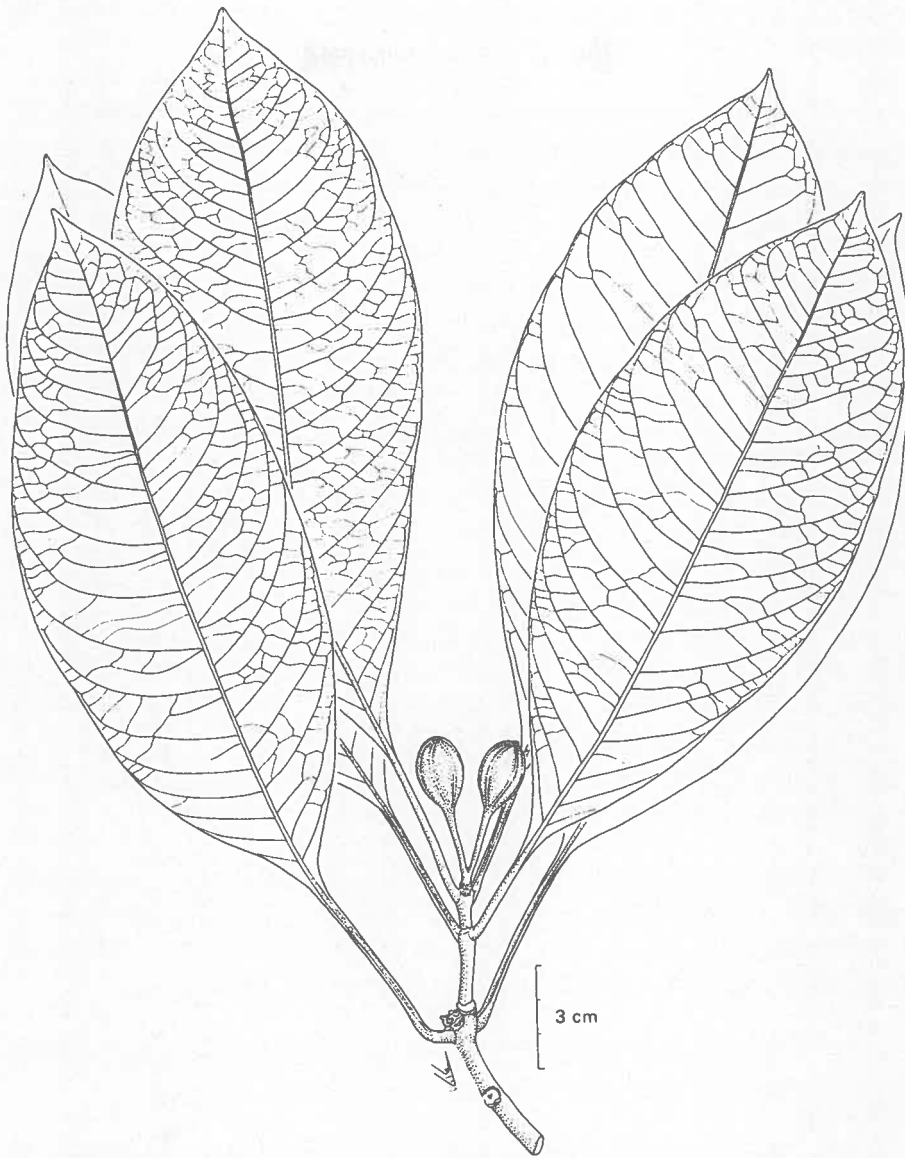


Fig. 82. *Psychotria monopedicellata*. Sohmer et al. LAE 75395 (LAE, holotype): habit of fruiting branch.

lowland rain forest, at 240 m, from a tree ca. 5 m tall with red fruit, 23 May 1979.

Arbores 4–10 m altae sunt, stipulis usque ad 5 cm longis calyptratis, novellis ex fissura laterali protrusis, petiolis 3–6 cm longis, laminis 7.3×14.5 – 10×22 cm chartaceis vel semicoriaceis elliptico-ovalibus varie obovata-ellipticis vel late oblanceolato-ellipticis basi acuminata apice breve acriter acuminato nervis lateralibus 12–17 in dimidio quoque, inflorescentia cum axi principali breviori crasso nodis congregatis, ramis 3–6 aequalibus 2–3 cm longis congregatis umbelliformatis licet cymulis unifloris, floribus incognitis, fructibus 2.5–3.5 cm longis ellipsoideo-fusiformibus rubris, pyrenis deltoideis liro centrali acri in testa paulum intruso saepe cum liris binis minoribus, endospermo homoganeo non ruminato.

Tree 4–10 m high. Stipules calyptrate, to 5 cm long, the young leaves or flowers emerging through a lateral, longitudinal slit. Leaves with petioles 3–6 cm long; blades chartaceous to semicoriaceous, elliptic-oval to obovate-elliptic or broad, oblanceolate-elliptic, 7.3×14.5 – 10×22 cm, lateral veins 12–17 per side, apex short and sharp acuminate, base acute to acuminate. Inflorescence with main axis very short and stout, appearing as part of the stem apex, internodes compressed, 3–6 equal branches appearing to arise from the same point, branches 2–3 cm long, umbelloid in appearance, apparently only the terminal flower of what should be a cyme produced. Flowers unknown. Fruit red at maturity, ellipsoid-fusiform, 2.5–3.5 cm long. Pyrenes triangular in outline, the central ridge sharp and extending for a distance into the fruit wall, often with 2 smaller, but similar, lateral ridges, the endosperm homogeneous, not ruminant.

Other Specimens Examined. PNG. WNB: SW of Gilnit, *Frodin* NGF 26245 (BO, L, LAE, SING); upper Johanna Riv, *Frodin* NGF 26504 (L, LAE); Garu Wildlife Management Area, *Sohmer et al.* LAE 75398 (LAE). ENB: Lackit, *Ridsdale & Katik* NGF 38012 (BISH, BO, CANB, K, LAE, PNH).

Distribution. Apparently restricted to New Britain in lowland primary forests to lower montane forests from ca. sea level to ca. 800 m.

Distinguishing Features. Stipules calyptrate, large; inflorescence umbelloid, the branches appearing as pedicels; fruit red at maturity and relatively very large, 2.5–3.5 cm long.

Remarks. This species bears a very close resemblance to *P. novohiberniensis*, sp. nov., but can be distinguished from it by the much larger fruit and leaves.

Psychotria montensis Moore, J. Bot. (London) 65: 268 (1927). Fig. 83.—Type: *Brass* 1511 (BM, lectotype, here designated; A, K, isolecotypes), PNG: NORTHERN PROV: Tudi Dist: Owen Stanley Mts btwn Mt Brown and Mt Clarence, at ca. 1,300 m, 19 May 1926.

Glabrous shrub about 1 m tall. Stipules probably valvate, cleft at apex. Leaves with petioles 1.5–2 cm long; blades chartaceous, glabrous, elliptic to elliptic-obovate, 2 × 4–5 × 8 cm wide and long, lateral veins 5–7 per side, apex acuminate to abruptly long-acuminate, base acute to obtuse. Inflorescence monochotomous, about 6 cm long, main axis unbranched for about ½ its length, with 1–2 primary nodes with opposite branching at each, nodes widely separated, branches terminated by cymules, branches and main axis whitish at anthesis. Flowers 5-merous, dimorphic(?), calyx and hypanthium about 1 mm long, lobes reduced; corolla white with tube about 1.2 mm long, lobes about 1.5 mm long; stamens with filaments about 1 mm long, anthers about same; pistil with style about 1 mm long with stigmas about 0.4 mm long. Fruit about 5 mm. Pyrenes and endosperm unknown.

Other Specimens Examined. IJ. Vogelkop: Arfak, Auzi Gita Lake slope, *Kostermans* 2428 (BO).

Distinguishing Features. Leaf blades narrow-elliptic, less than 9 cm long, both ends acuminate; inflorescence somewhat delicate; fruit obovoid-elliptic.

Remarks. I have been able to match just 1 other collection to the type. This collection appears to have been in the same habitat but at a considerable geographic distance from the type gathering. Much of the information on flowers and fruit is derived from the original description.

Psychotria morobensis Sohmer, *sp. nov.* Fig. 84.—Type: *Streimann & Kairo* NGF 21071 (LAE, holotype; BISH, BFC, BO, CANB, L, SING, isotypes), PNG: MOROBE PROV: Wau Dist: nr junction of Edie Creek and Kaindi roads, in montane forest, at ca. 2,000 m, 28 Mar 1965.

Frutices jacentes usque ad 2 m altae sunt, stipulis valvatis, ovatis vel lanceolatis usque ad 1.5 cm longis, petiolis 0.5–2 cm longis. Laminis 2.3 × 7–5.5 × 15.5 cm chartaceis varie semicoriaceis glabris plerumque ellipticis basi acuta apice acuminato nervis lateralibus 6–8 in dimidio quoque, inflorescentia sessili cum 8–15 floribus sessilibus ex receptaculo condensato, floribus in serie flores-



FLORA OF PANAMA
ANDRÉ W. BRASS

Psychotria montensis
alt. 1000 ft. Pan.
small plant in
fruit

Fig. 83. *Psychotria montensis*. Brass 1511 (K, isoelectotype).

SOHMER: NEW GUINEA AREA PSYCHOTRIA

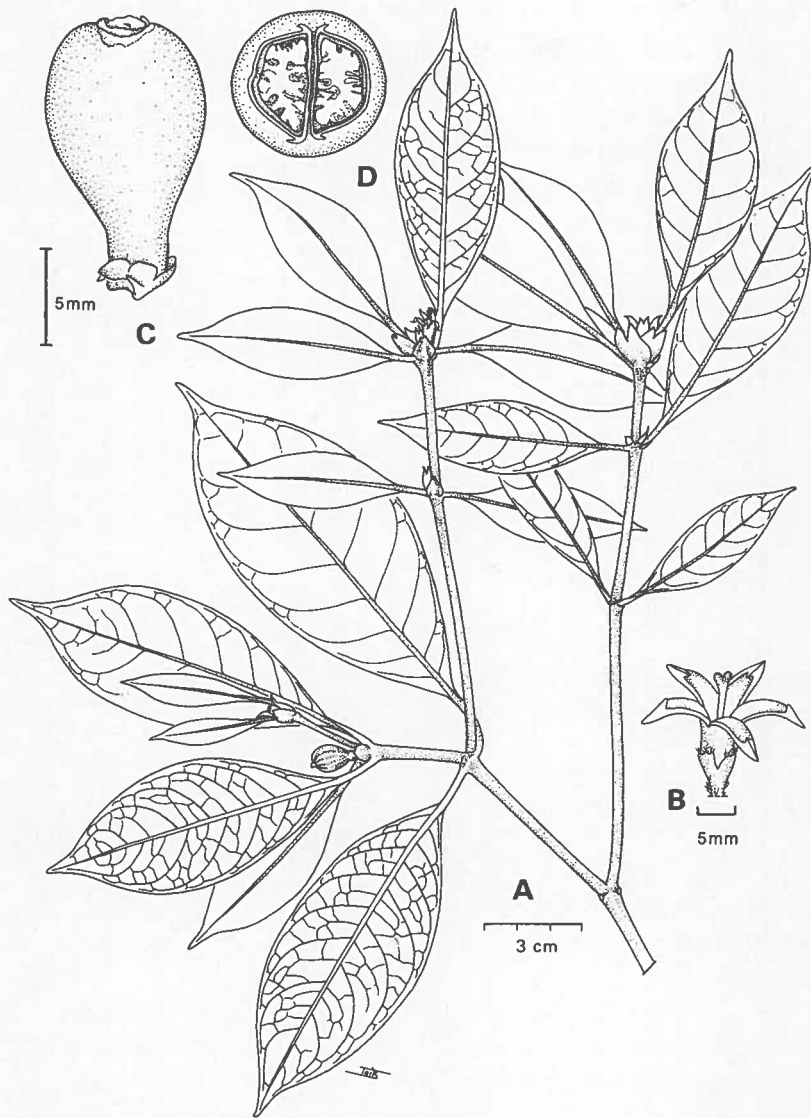


Fig. 84. *Psychotria morobensis*. Streimann & Kairo NGF 21071 (LAE, holotype): A, habit; B, pin flower; C, fruit; D, fruit x.s.

centibus omnibus a stipulis et 1-2 jugis bracteorum clausis, floribus 5-meris dimorphicis, calyce et hypanthio 3-3.5 cm longis membranaceis dilatatis truncatis, corollis albis crasse carnosis tubo 7-8 mm longo intra piloso lobis fore 7-8 mm longis lineari-acuminatis in flore reflexis, antheris 2 mm vel ultra longis, stigmatibus

0.6 mm longis in floribus pinaceis ver 4–5 mm protrusis, fructibus 9–10 mm longis rubris, pedicellis brevibus crassitoribus, pyrenis in dorso laevibus sine cortis vel liris, endospermo valde ruminato.

Sprawling shrubs to 2 m high, twigs glabrous. Stipules valvate, ovate or lanceolate, to 1.5 cm long, apex acute. Leaves with petioles 0.5–2 cm long; blades chartaceous to semicoriaceous, glabrous, generally elliptic, $2.3 \times 7\text{--}5.5 \times 15.5$ cm, lateral veins 6–8 per side, apex acuminate, base acute. Inflorescence sessile, compact, with 8–15 sessile flowers from a condensed receptacle, the flowers not maturing simultaneously, the whole surrounded and appressed by the stipules and, sometimes, 1 or 2 pairs of bracts within. Flowers 5-merous, dimorphic, sessile; calyx and hypanthium membranaceous, together 3–3.5 mm long, dilated towards the truncate summit; corolla white, thick and fleshy, the tube 7–8 mm long, hairy within, the lobes linear-acuminate, about equal in length to tube, reflexed at anthesis; anthers 2 mm long or longer; stigmas about 0.6 mm long, exerted 4–5 mm beyond tube in flowers. Fruit red when ripe, obovoid, 9–10 mm long on a short but very stout pedicel. Pyrenes smooth on back, not ribbed or ridged, endosperm prominently ruminant.

Other Specimens Examined. PNG. Mo: Wau S.P.: Edie Crk, Hartley TGH 11754 (A, CANB, L, LAE), Ridsdale NGF 30196 (L, LAE); Poverty Crk, Sohmer & Gideon LAE 75262 (LAE).

Distribution. Montane forests from ca. 1,600 to 2,000 m in the Wau area of Morobe Province.

Distinguishing Features. Leaf blades with 6–8 lateral veins per side; inflorescence sessile, subtended by 1–2 pairs of bracts as well as the stipules; flowers sessile, clustered, the calyx-hypanthium membranaceous.

Remarks. This species is very closely related to *P. rosseliensis*, sp. nov., and shares similarities in habit, inflorescence, flower, and fruit morphology with the latter taxon. The fruit of the latter species, however, is black at maturity, not red as it is here.

Psychotria multicostata Valeton, Bot. Jahrb. 61: 91 (1927). Fig. 85.—Type: *Ledermann 10284* (L, lectotype, here designated), PNG: Sepik area, without further data.

?*Psychotria multicostoides* Valeton, Bot. Jahrb. 61: 92 (1927).—Type: Various Ledermann collections cited from various localities in NE New Guinea; none seen.

SOHMER: NEW GUINEA AREA PSYCHOTRIA

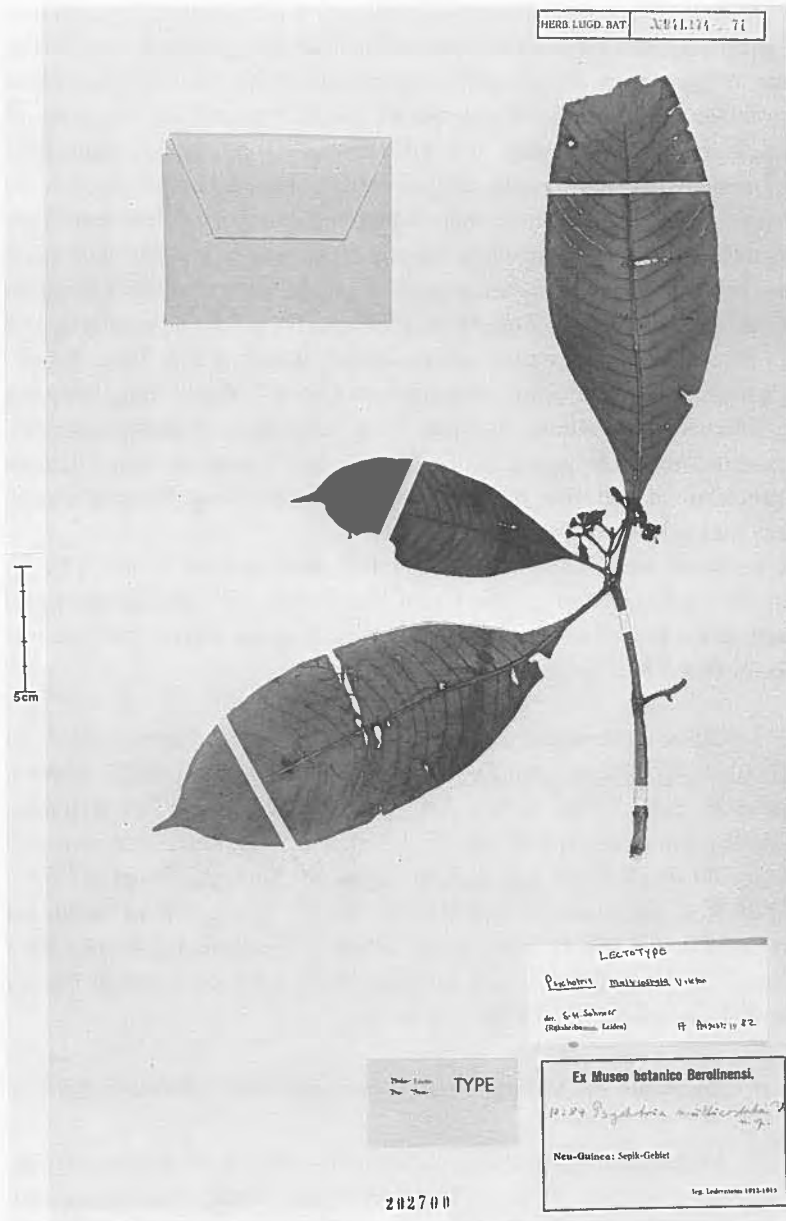


Fig. 85. *Psychotria multicostata*. Ledermann 10284 (L, lectotype).

Shrubs or small trees 1.5–2.5 m high. Stipules valvate, membranaceous, broadly-obovate, the back covered with short white appressed hairs, often hairy on costa at base, apex deeply cleft to somewhat cleft, the lobes acuminate, the margins ciliate. Petioles to 3 cm long; blades chartaceous to semicoriaceous, elliptic-obovate, lanceolate or oblong, 5×10 – 7.5×19.5 cm, lateral veins 15–25 per side, impressed above, prominent and generally pubescent below, apex acuminate, base acute to acuminate. Inflorescence somewhat condensed, less than 3 cm long, 1 main axis branching quite close to the base, primary nodes 2–3 each with opposite branching, the branches branched 1–2 or more times and terminated by clusters of cymules. Flowers 5-merous, dimorphic(?), glabrous, sessile; hypanthium about 1.5 mm long, calyx tube wide, dilated, about 1 mm long, lobes short, obtuse or round; corolla white, thin in texture, tube 5–8 mm long, hairy at throat within, lobes linear-subulate, 4–5 mm long, reflexed at anthesis; anthers 2 mm long, exserted (thrum flowers); pistil with style and stigmas included (thrum flowers). Fruit white at maturity, ovoid-globose, 8–10 mm long. Pyrenes without ribs or ridges on back, endosperm ruminant.

The specimen designated as lectotype is 1 of 6 collections cited by Valetton (op. cit.) in his description of this taxon that I have seen. Before examining this specimen at Leiden I had tentatively established a new taxon for individuals of the species that I had collected.

Other Specimens Examined. IJ. Nr Djayapura, *Kostermans & Soegeng* 28 (BO, L). PNG. Baiyer–Jimi Divide, *Henty & Streimann* NGF 38899 (LAE), *Sohmer et al.* LAE 75511 (LAE), LAE 75512 (LAE), LAE 75514 (LAE), LAE 75515 (LAE); Kuta Forest, *Robbins* 23 (LAE). EH: Wanitabe, *Hancock* 16 (LAE), *Womersley* NGF 17659 (BO, K, L, LAE). Mo: Mt Shungol, *Hartley* TGH 12466 (A, CANB, K, L, LAE), *Kairo* NGF 45334 (BFC, K, LAE), NW of Aseki, *Schodde & Craven* 5012 (CANB, L, LAE). W: nr Nomad, *Trisagobabi*, *Kerenga & Lelean* LAE 73927 (L, LAE, UPNG). Ce: Mafulu, *Brass* 5304 (BO). ENB: Mt Lululua, *Stevens & Lelean* LAE 58316 (K, L, LAE).

Distribution. Montane rain forests between 1,500 and 2,200 m.

Distinguishing Features. Leaf blades with 15–25 pairs of lateral veins; inflorescence condensed (but not headlike); fruit white; pyrenes without ribs, endosperm ruminant.

Remarks. This species is clearly related to *P. dolichantha* and *P. kaniensis*. There are apparently glabrous forms such as *Sohmer et al.* LAE 75515

and Womersley NGF 17569 (LAE). Valetton's *P. multicosoides* probably belongs here. Valetton himself felt that the examples he had of his *P. multicosoides* could have represented merely juvenile forms of his *P. multicosata*.

Psychotria multipedunculata Sohmer, sp. nov. Fig. 86.—Type: *Stevens & Lelean LAE 58599* (LAE, holotype and isotype; CANB, L, isotypes), PNG: WEST NEW BRITAIN PROV: Hoskins Dist: SE slopes of Mt Ulawun (The Father), in "rich rainforest on deep scoria, well-drained," at 210 m, 5 Jun 1973.

Arbores 1.5–5 m altae sunt, stipulis semi-calyptatis sed non connatis, se imminentibus et cylindrum angustum vel tubrem formantibus et novellis ex apice protrusis, laminis $8 \times 25\text{--}25.5 \times 46$ cm semicoriaceis varie coriaceis obovatis varie oblanceolatis basi obtusa vel attenuata apice breve acuminato vel acuto nervis lateralibus 15–21 in dimidio quoque, axibus inflorescentiae plerumque cum axibus complioribus vel multis ex puncto centrali radiantibus, ramis in glomerulis capitatis cum minus 10 floribus, floribus 5-meris dimorphicis sessilibus, hypanthio 1.5 mm longo, calyce 1 mm longo plerumque connato in apice truncato sed cum lobis compluribus irregularibus acuminatis, corollis albis semicoriaceis tubo 7–8 mm longo angusto ad apicem vix dilatato intra piloso lobis anguste lanceolatis acutis extra pilosis in flore reflexis, antheris 2 mm longis basifixis in floribus pinaceis, stylo 9–10 mm longo, fructibus 13–15 mm longis globoso-obovoideis rubris discum et calycem inclusis, pyrenis in dorso cum 1 vel 3 costis irregularibus, endospermo prominente ruminato.

Trees 1.5–5 m high. Stipules semicalyptate but not fused, overlapping each other to form a narrow cylinder or tube through which, apparently, the young leaves or inflorescence emerges at the apex. Leaves with blades semicoriaceous to coriaceous, obovate to oblanceolate, $8 \times 25\text{--}25.5 \times 46$ cm, lateral veins 15–21 per side, apex short-acuminate or acute, base obtuse or attenuate. Inflorescence usually with several to many axes radiating from a central point that probably represents the main axis, the branches terminating in headlike glomerules of less than 10 flowers each. Flowers 5-merous, dimorphic, sessile, or on minute pedicels; hypanthium about 1.5 mm long; calyx about 1 mm long, nearly all tube, truncate at top except for several irregular, acuminate lobes; corolla white, somewhat leathery in texture, the tube narrow, 7–8 mm long, hardly dilated towards summit, hairy within, the lobes narrow, lanceolate-acute, hairy on back, reflexed at anthesis; anthers basifixed, 2 mm long in pin flowers; pistil with style 9–10 mm long in pin flowers. Fruit red when ripe, globose-obovoid, 13–15 mm long, including the persistent and prominent disc and calyx. Pyrenes with 1 or 3 irregular ribs on back, endosperm prominently ruminant.



Fig. 86. *Psychotria multipedunculata*. Stevens & Lelean LAE 58599 (LAE, isotype): A, habit of flowering branch; B (LAE, holotype): habit of fruiting branch.

Other Specimens Examined. PNG. MB: Normanby I, *Croft & Lelean* LAE 71183 (L, LAE). WNB: Mt Klangal, *Croft & Katik* NGF 41274 (LAE); nr Parilongi Vill, *Sayers* NGF 21919 (LAE); upper Johanna Riv, *Froding* NGF 26494 (LAE); above Fulleborn Harbor, *Isles et al.* NGF 32392 (LAE); Torlu Riv, *Sayers* NGF 24210 (LAE); Nuau logging site, *Lelean & Stevens* LAE 51183 (K, LAE); btwn Arungi Vill & Mt Lakit, *Croft & Katik* NGF 41447 (K, LAE, PNH). ENB: Mt Lakit, *Ridsdale & Katik* NGF 38015 (K, LAE). NI: nr Metemulai Vill, *Croft & Lelean* LAE 65520 (CANB, K, LAE); Lassuk to Bagaterre, *Coode et al.* NGF 29733 (BISH, BO, CANB, K, L, LAE, SING); Taro, *Sands et al.* SAND 2087 (L), SAND 2105 (L).

Distribution. Mostly in lowland primary forests from sea level to 1,100 m in the Bismarck Archipelago and the Milne Bay islands.

Distinguishing Features. Stipules calyptroid, but not fused; leaf blades over 25 cm long; inflorescence with several to many axes radiating from a short, stout main axis; corolla lobes hairy on back, anthers basifixed.

Remarks. This species is easily recognized by the large leaves, multi-pedunculate inflorescence, pubescent flowers, and the prominent disc and calyx that persist in fruit. It is separable from *P. crassipedunculata* by the fact that it has fewer than 10 flowers per headlike glomerule. It may well represent the same entity as *P. peekeliana* Valetton but cannot be combined until a satisfactory explanation is found for the fact that the latter taxon, as reported by its author, supposedly has corolla and calyx twice the sizes of those of *P. multipedunculata*.

The *Croft & Lelean* LAE 71183 collection represents an individual whose leaves are very much like those of *P. archboldii* var. *archboldii*.

Psychotria mur-murensis Sohmer, sp. nov. Fig. 87.—Type: *Sohmer et al.* LAE 75529 (LAE, holotype; LAE, isotype), PNG: WESTERN HIGHLANDS PROV: Tambul Dist: Mur Mur Pass, in disturbed upper montane forest, at 3,000 m, 19 Jun 1979.

Frutices vel arbores 1.5–2 m altae sunt, stipulis valvatis usque ad 3 cm longis coriaceis ovato-oblongis varie anguste oblongis in apice paulum fissis vel bifidis lobis acutis varie acuminatis in dorso saepe dense villosis, petiolis 1–3.5 cm longis, lamina 2.5 × 8.2–8.2 × 18.5 cm plerumque rigide coriaceis rugosis ellipticis basi acuta apice acuminato nervis lateralibus 9–15 in dimidio quoque eis et nervis tertiis supra profunde impressis infra prominentioribus et manifestioribus,

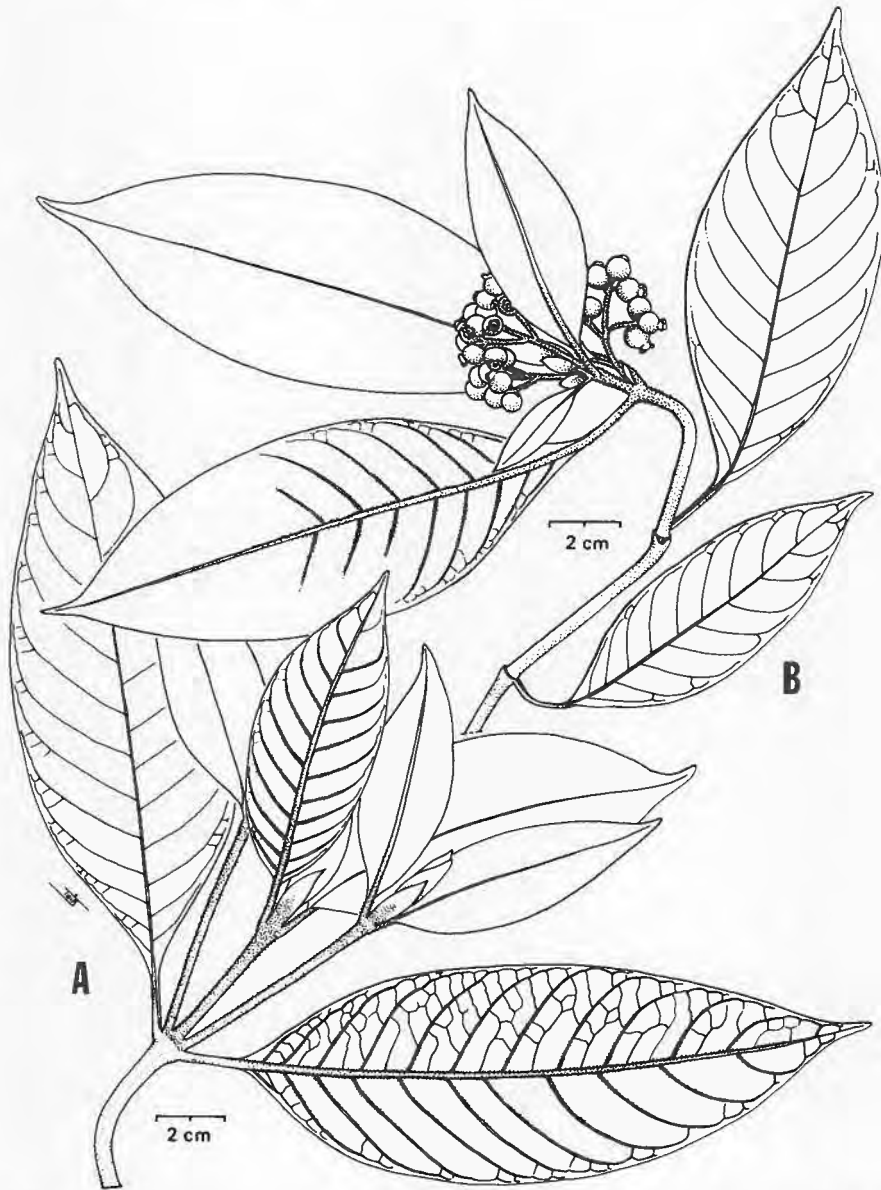


Fig. 87. *Psychotria mur-murensis*. *Sohmer et al.* LAE 75529 (LAE, holotype): A, habit of sterile branch; B, habit of fruiting branch.

inflorescentia usque ad 12 cm longa plerumque cum pedunculo longo, axi principali per $\frac{1}{2}$ partem ramoso pendenti, 1–2 nodis cum ramis oppositis eis cum 1–2 cymis 3 floriferis omnibus plerumque pilososis, floribus 5-meris dimorphicis sessilibus, hypanthio 1.5 mm longo dense piloso, calyce dense piloso tubo 1.5 mm longo lobis acuminatis prope tam longis corollis albis subcarnosis paulum a pilis brevibus velatis pilis delicatioribus quam illis calycis, tubo 10–12 mm longo ad apicem paulum dilatatis intra pilosis, lobis 5 mm longis ovatis in flore reflexis, anthesis 1.5 mm longis in floribus thrumaceis, fructibus 7–9 mm longis globosis albis a calyce coronatis, pyrenis in dorso costalis, endospermo ruminato.

Shrubs or small trees 1.5–2 m high. Stipules valvate, coriaceous, ovate-oblong to narrow-oblong, to 3 cm long, often densely villous on back, apex slightly cleft or bifid, the lobes acute to acuminate. Leaves with petioles 1–3.5 cm; blades usually very stiffly-coriaceous, rugose, elliptic, 2.5×8.2 – 8.2×18.5 cm, lateral veins 9–15 per side, the lateral and tertiary veins deeply impressed above, prominent below and very conspicuous, usually pubescent below, apex acuminate, base acute. Inflorescence to 12 cm long, usually with a long peduncle, the main axis unbranched $\frac{3}{4}$ – $\frac{1}{2}$ of length from base, pendent, 1–2 nodes with opposite branching at each, the branches bearing 1–2 cymules of 3 flowers, all axes usually densely pubescent. Flowers 5-merous, dimorphic, sessile; hypanthium about 1.5 mm long, densely pubescent; calyx densely pubescent, tube 1.5 mm long, lobes acuminate, nearly as long; corolla white, somewhat fleshy, not thin in texture, lightly covered with short hairs that are lighter and more delicate than those on calyx, tube 10–12 mm long, slightly dilated towards summit, hairy within, lobes ovate, about 5 mm long, reflexed at anthesis; anthers about 1.5 mm long in thrums. Fruit white at maturity, globose, 7–9 mm long, capped by persistent calyx. Pyrenes weakly ridged on back, endosperm ruminant.

Other Specimens Examined. SH: Mt Ambua, Kalkman 5204 (CANB, LAE); nr Margarima, Quinn 4258 (LAE); Hagen–Mendi Rd, Vandenberg *et al.* NGF 39700 (K, LAE). E: Bank of Lai Riv, Flenley ANU 2727 (CANB, L, LAE). WH: Mur Mur Pass, Sohmer *et al.* LAE 75527 (LAE), LAE 75528 (LAE); nr Nondugl, Gillard *s.n.* (LAE). EH: Mt Michael, Sohmer *et al.* LAE 75429 (BISH, LAE). Mo: Mt Kumba, Fallen 602 (L, LAE).

Distribution. Upper montane forests throughout the Highlands of Papua New Guinea from ca. 2,000 to 3,200 m.

Distinguishing Features. Leaf blades stiffly coriaceous, rugose, tertiary veins conspicuous; inflorescence long-pedunculate.

Remarks. The coriaceous, rugose nature of the leaves is similar to that of leaves of *P. crassiramula* and *P. dolichantha*, particularly of the former. However, the inflorescence here is usually pedunculate and lax, a characteristic not found in the other 2 species.

Psychotria myrmecophila Lauterbach & Schumann, Fl. Deutsch. Schützgeb. Südsee, p. 578 (1901).—Type: *Collector unknown s.n.* (WRS�, neotype).

Trees or small shrubs. Stipules valvate, cleft, glabrous. Leaves with short petioles; blades semicoriaceous, narrowly oblanceolate, over 35 cm long, lateral veins about 15–20 per side. Inflorescence congested, not over 5 cm long. Flowers unavailable for study. Fruit white at maturity.

There is 1 specimen that may belong to this taxon at LAE. The state of that specimen and the fragmentary nature of the neotype herein designated make that difficult to determine, however.

There are 2 collections cited by the authors of the species description. The type specimen consists of 1 leaf, a stipule, and an entire inflorescence in early fruit. It may actually represent pieces of 1 of these 2 syntypes. There were no labels with the material, but on a fragment package holding the inflorescence and stipule is the following information: "Ramu Fluss 170, Bismarck geb. 30 VI 99." This specimen was most likely from the Rodatz and Klink expedition to New Guinea in 1899, but the syntype *Rodatz & Klink 205* was collected on 3 July 1899. There is no sign of the other syntype, *Lauterbach 3136*. The handwriting on the fragment package is probably that of Lauterbach. I have tentatively designated the fragments available as neotype.

Other Specimens Examined. PNG. G: Wabo dam-site ridge, *Conn et al.* LAE 66280 (LAE).

Psychotria myrsinoides Merrill & Perry, J. Arnold Arbor. 27: 200 (1927). Fig. 88.—Type: *Brass 8810* (A, holotype; BM, BO, L, LAE, isotypes), IRIAN JAYA: vicinity of Djayapura [formerly Hollandia] in secondary savannahs, between 20 and 100 m.

Shrubs or small trees 1–7 m high; twigs often drying a rich, reddish brown. Stipules valvate, fleshy, ovate or ovate-lanceolate, to 1 cm long, apex acute or acuminate, not cleft or very minutely so, margins often irregularly fissured or ciliate. Leaves with petioles 0.5–1.5 mm long; blades very stiff, coriaceous, smooth and glabrous, elliptic or lanceolate-elliptic, 1.5 × 6.5–5 × 17 cm, lateral veins

SOHMER: NEW GUINEA AREA PSYCHOTRIA

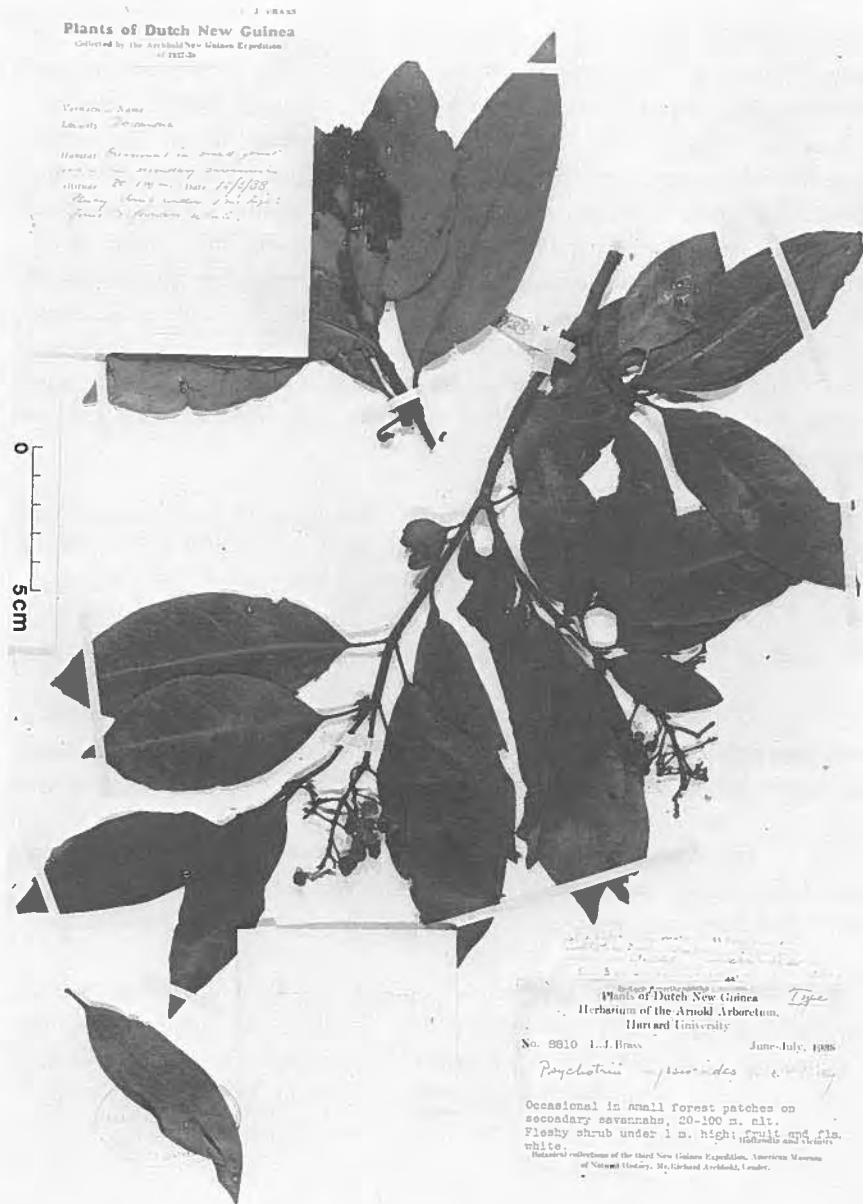


Fig. 88. *Psychotria myrsinoides*. Brass 8810 (A, holotype).

7–10 per side, weakly defined, apex and base acute to obtuse, often drying reddish-brown. Inflorescence white, 5–10 cm long, nearly equaling length of subtending leaves, 1 main stout axis unbranched $\frac{1}{2}$ – $\frac{3}{4}$ its length from base, 2–5 primary nodes with verticillate branching at each, each branch subtended by linear bracts to 1.5 cm long (on principal branches), branching verticillately themselves to form an expanded inflorescence towards the top, the axes glabrous or minutely puberulent. Flowers 5-merous, dimorphic, a dense covering of minute hairs on all parts, on short pedicels; calyx and hypanthium together 2.5–3 mm, lobes acute to obtuse; corolla white, tube about 3 mm long, hairy within at throat, somewhat dilated towards summit, lobes somewhat thin, ovate-subulate, to 2 mm long, reflexed at anthesis; anthers about 0.5 mm long in pin flowers; pistil with stigmas exerted about 1 mm beyond corolla tube throat in pin flowers. Fruit white at maturity, globose, 4–6 mm long. Pyrenes with 3 inconspicuous ridges on back, endosperm slightly ruminant.

Other Specimens Examined. IJ. Djayapura, *Kostermans & Soegeng* 231 (BO, K, L), *Van der Sijde* BW 4051 (CANB, LAE), BW 4079 (CANB, K, LAE), BW 4125 (CANB, K, LAE), *van Royen & Sleumer* 6312 (L), *Versteeg* BW 656 (BO, LAE, PNH). BW 3914 (BO, LAE); Seroei, *Aët & Idjan* 362 (BO, L). PNG. G: Saw Mts, nr Hells gate, *Pullen* 6540 (CANB, LAE).

Distribution. Found in Irian Jaya in the vicinity of Djayapura and other areas, generally on steep, sandy clay soil in secondary vegetation at elevations no higher than 100 m, and in the Gulf Province of Papua New Guinea at ca. 650 m.

Distinguishing Features. Plant parts glabrous or covered with a minute, often dense, pubescence; leaf blades leathery, smooth, lanceolate-elliptic, often drying reddish brown; fruit small, white; pyrenes slightly ridged on back.

Remarks. This plant can be recognized in the herbarium by its leathery, smooth, lanceolate-elliptic, reddish-brown leaf blades and by its robust inflorescence on long peduncles that nearly equal the subtending leaves. Merrill & Perry (op. cit.) considered the species similar to *P. pallida* Valetton. I have not seen material of that taxon and found nothing at LAE very similar to it.

Psychotria nanifrutex Sohmer, sp. nov. Fig. 89.—Type: *Sohmer & Kerenga* LAE 75248 (LAE, holotype), PNG: MOROBE PROV: Wau Dist: Kaisinik logging area in montane forest dominated by *Castanopsis* and an undergrowth of *Nastus*, at ca. 2,000 m, from a small shrub ca. 0.5 m tall whose leaves were clustered at the tips of the branches due to very short internodes, May 1979.

SOHMER: NEW GUINEA AREA PSYCHOTRIA

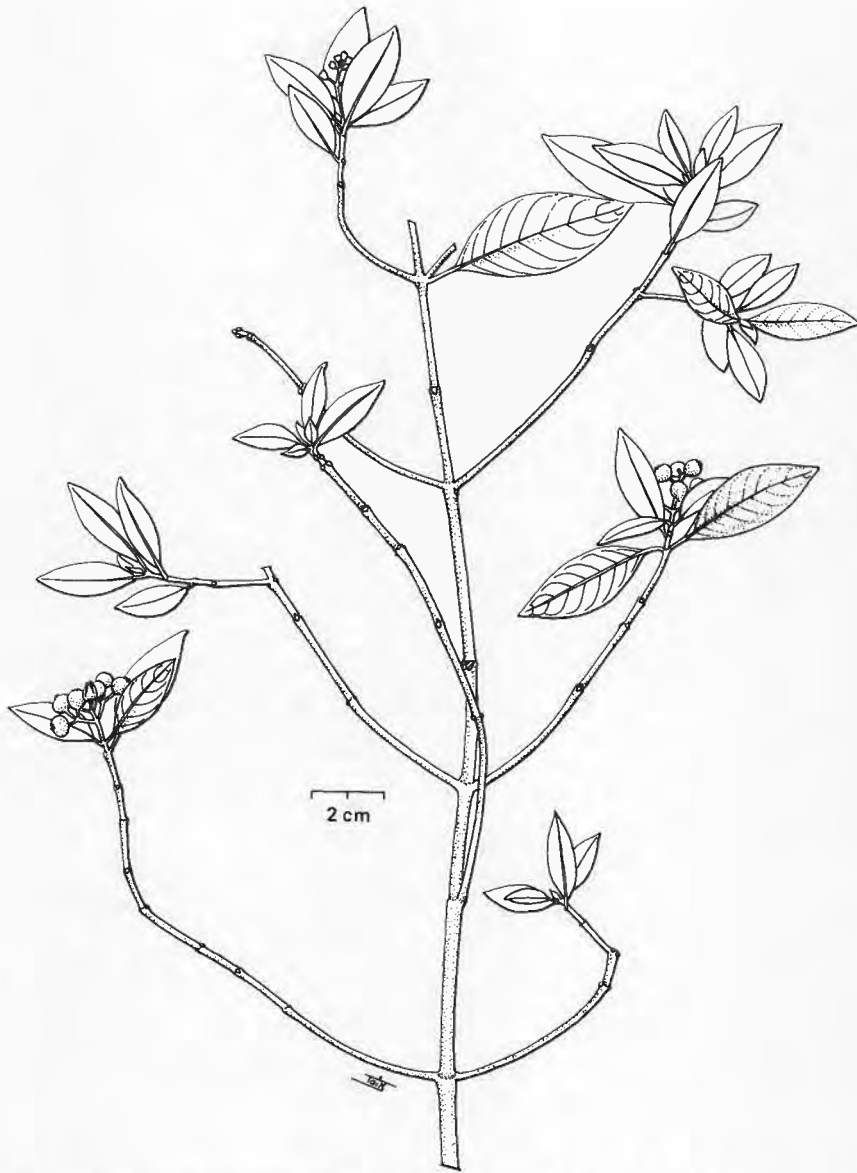


Fig. 89. *Psychotria nanifrutex*. Sohmer & Kerenga LAE 75248 (LAE, holotype): habitat with fruiting branches.

BULLETIN 1: BOTANY

Frutices minores 0.5–5 m alti sunt sed plerumque 1 m vel minus, stipulis valvatis ciliatis 0.5–0.9 cm longis apice longe acuminato costa grandi prominenti ad apicem extensa, petiolis 0.4–1 cm longis, laminis $0.8 \times 2-2 \times 9$ cm ellipticis vel anguste ellipticis semicoriaceis glabris basi apiceque acutis varie acuminatis nervis lateralibus 7–8 in dimidio quoque eis, inflorescentia 1.5–5.5 cm longa plerumque quorum foliis sustentibus breviori, axi principali glabro et proxima basem cum ramis, 1–2 nodis primeriis cum ramis oppositis cum floribus paucis, floribus 5-meris dimorphicis glabris, pedicellis brevibus, hypanthio et calyce 3–3.5 mm longis lobis 0.5–1 mm longis acuminatis, corollis albis semicarnosis, tubo ad basim angustiori ad apicem distento intra piloso, lobis tubum aequantibus lineari-oblongis in flore licet reflexis, fructibus 6 mm diametro albis, pyrenis in dorso laevibus, endospermo ruminato.

Small shrubs 0.5–5 m tall or less, most 1 m or less. Stipules valvate, ovate-lanceolate, 0.5–0.9 cm long, apex long acuminate, costa large, prominent and extending into tip, the margins ciliate. Leaves with petioles 0.4–1 cm long; blades semicoriaceous, glabrous, elliptic to narrow elliptic, $0.8 \times 2-2 \times 9$ cm, lateral veins 7–8 per side, apex and base acute to acuminate. Inflorescence 1.5–5.5 cm long, mostly shorter than subtending leaves, main axis branched a short distance from base, glabrous, 1 or 2 primary nodes with opposite branching at each, sparsely flowered. Flowers 5-merous, dimorphic, glabrous, on short pedicels; hypanthium and calyx together 3–3.5 mm, lobes 0.5–1 mm long, acuminate; corolla white, semifleshy, tube noticeably narrower at base than calyx, expanded somewhat towards throat, hairy within, lobes linear-oblong, about same length as tube, probably reflexed at anthesis. Fruit white at maturity, globose, about 6 mm in diameter. Pyrenes without ridges, endosperm ruminant.

Other Specimens Examined. PNG. M: Sewe, *Sayers* NGF 19826 (BO, CANB, K, LAE); Finisterre Mts, Budemu, *Sayers* NGF 21331 (BO, L). WH: Wahgi–Jimi Divide, *van Royen* NGF 18176 (LAE). EH: South Fore Census Divide, *Broadhurst* 15 (LAE); road to Okapa, *Galore & Katik* NGF 41181 (K, LAE), Kainantu–Okapa Rd, *Hartley* 13685 (CANB, LAE); Obura, *Hays* 132 (LAE); Zogewofi Vill, *Henty* NGF 27420 (LAE); ridge btwn Barola & Komperi, *Pullen* 721 (CANB, LAE); Marafunga, *Hartley* 13280 (CANB, L, LAE), *Stevens* LAE 51122 (LAE); Korofunota, *Womersley & Floyd* NGF 6935 (LAE). MO: Yamap, *Kairo* NGF 27555 (BFC, BO, K, LAE); Yamap, head of Bieme, *Kairo* NGF 44121 (BFC, CANB, K, L, LAE, SING); Wau–Kaisinik Rd, *Sohmer & Kerenga* LAE 75251, LAE 75256 (LAE); Lambunga, *Clemens* 6894 (CANB, L); Sambanga, *Clemens* 7164A (L).

Distribution. In montane forests between ca. 1,000 and 3,000 m in the northeastern part of New Guinea, often with *Castanopsis* or *Nothofagus*.

Distinguishing Features. Leaves often clustered at branch tips, leaf blades elliptic, small, both ends acuminate; inflorescence small, sparsely flowered; fruit white; pyrenes without ribs, endosperm ruminant.

Remarks. This is a distinctive plant in the field; it is often less than 0.5 m high and, due to the very short internodes, the leaves often appear to be clustered at the stem apices. This species may be related to *P. valetoniana*, which has the same type of stipules but significantly different leaves and inflorescence. This is one taxon in what might be a complex of taxa, including *P. giluwensis* and *P. chonantha*. These taxa morphologically appear to merge with taxa recognized as *Amaracarpus* by van Royen (1983), e.g., *A. giluwensis* and *A. archboldianus*. There appears at these points of morphological "contact" to be only arbitrary means of separating these historically recognized genera.

Psychotria novohibernensis Sohmer, sp. nov. Fig. 90.—Type: Coode NGF 40493 (LAE, holotype; BISH, CANB, K, L, LAE, isotypes), PNG: NEW IRELAND PROV: Kavieng Dist: nr Lemusmus Vill in disturbed forest on sharp coral rock substrate, at ca. 320 m, from a tree ca. 5 m tall, 9 Sep 1969.

Arbores parvae 3–6 m altae sunt, stipulis calyptrati anguste acuminatis usque ad 2 cm longis, novellis ex fissura longitudinali protrusis, petiolis 1–2.5 cm longis, laminis $4.5 \times 6.6\text{--}8 \times 13.5$ cm chartaceis vel semichartaceis oblongo-ellipticis varie oblanceolato-ellipticis basi obtusa vel acuta apice breve uterque acuminato nervis lateralibus 8–10 in dimidio quoque, axi principali inflorescentiae brevi internodis condensatis ut in conspectu ramis umbellatis ramis 2–3 cm longis unifloriferis ad pedunculus simulantibus, floribus incognitis, fructibus 13–15 mm longis rubris obovoideo-ellipsoideis, pyrenis in sectione transversali deltoideis, endospermo licet non ruminato.

Small trees 3–6 m high. Stipules calyptrate, narrow acuminate, to 2 cm, the juvenile leaves and flowers emerging laterally. Leaves with petioles 1–2.5 cm; blades chartaceous to semicoriaceous, oblong-elliptic to oblanceolate-elliptic, $4.5 \times 6.6\text{--}8 \times 13.5$ cm, lateral veins 8–10 per side, apex short, sharp acuminate, base obtuse to acute. Inflorescence with a short main axis, internodes compressed, the branches appearing umbelloid, each branch with 1 fruit (apparently only the terminal flower of a potential cyme developing), the branches 2–3 cm long, appearing as peduncles. Flowers unknown. Fruit red at maturity, obovoid-ellipsoid, 13–15 mm long. Pyrenes triangular in cross section, endosperm apparently not ruminant.

Other Specimens Examined. PNG. NI: Logogon Vill, Croft & Lelean

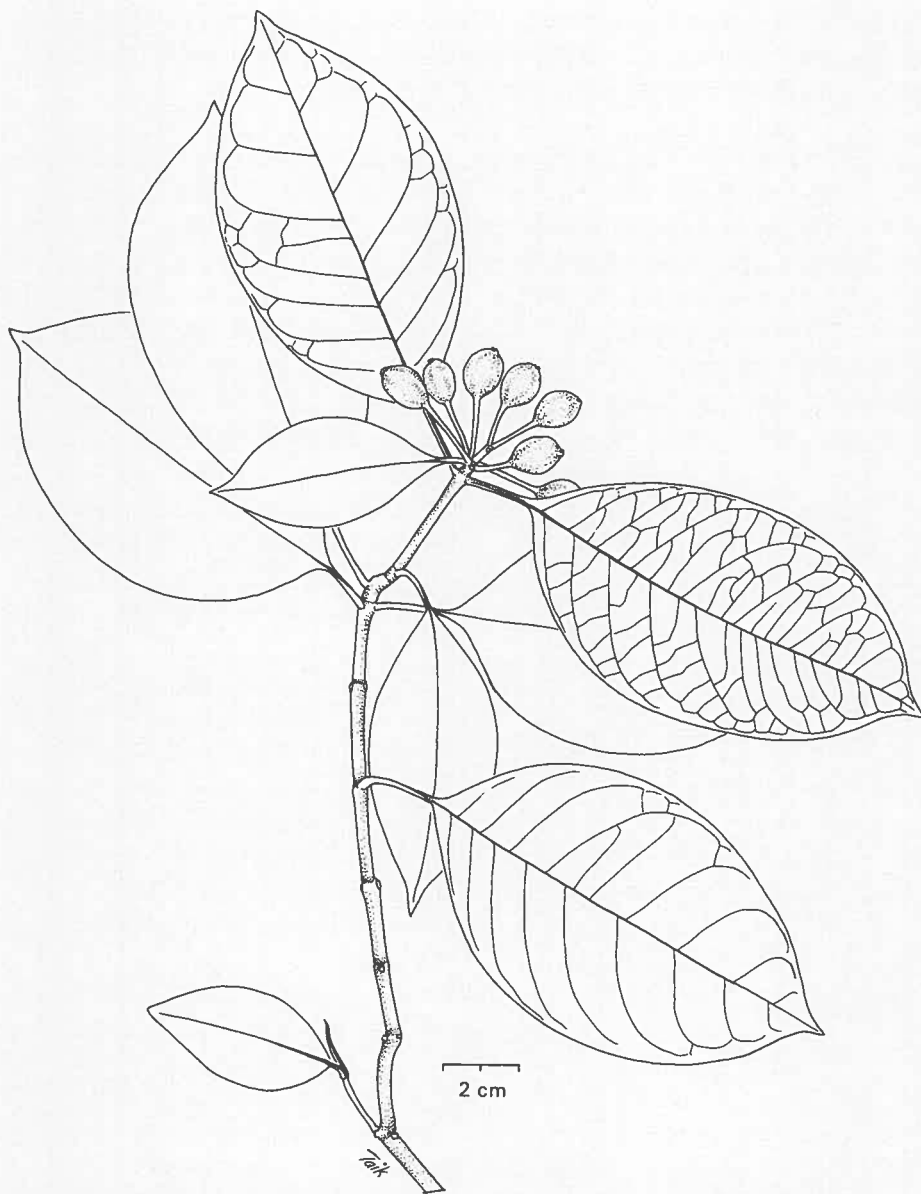


Fig. 90. *Psychotria novohibernensis*. Coode NGF 40493 (LAE, holotype); habit of fruiting branch.

SOHMER: NEW GUINEA AREA *PSYCHOTRIA*

LAE 65670 (CANB, LAE); Ma: Wali Riv nr Derimbat, Foreman LAE 52432 (LAE, PNH).

Distribution. Lowland rain forest ridges or outcroppings on relatively steep and well-drained terrain from 100 to ca. 300 m.

Distinguishing Features. Stipules calyptrate; inflorescence umbelloid, the branches appearing as pedicels; fruit red at maturity, 13–15 mm long.

Remarks. This species is very close to *P. monopedicellata* in habit and morphology, and like *P. monopedicellata* has branches that appear to be terminated by what appears to be a single fruit. The fruit of this species, however, is $\frac{1}{2}$ the size of that of *P. monopedicellata*. At present there is too little information available for a satisfactory understanding of these 2 species. If the tendency to produce a pedicelloid branch is not part of a tendency to reduce the complexity of the inflorescence in Papuanian *Psychotria*, as is at present believed, these 2 taxa will have to be referred elsewhere.

Psychotria paludicola Merrill & Perry, J. Arnold Arbor. 27: 203 (1946). Fig. 91.—

Type: *Brass* 13637 (A, holotype; BM, BO, L, isotypes), IRIAN JAYA: 4 km SW of Bernhard Camp, Idenburg Riv, in rain forest, at 850 m, Mar 1939.

Small trees 2–4 m tall. Stipules unknown. Leaves with petioles 1–2.5 mm long; blades chartaceous to subcoriaceous, glabrous, elliptic to oblong, $4 \times 9\text{--}9 \times 21$ cm, the lateral veins 12–14 per side, apex abruptly acuminate, base acute to cuneate. Inflorescence unknown. Infructescence 5–8 cm long, with 1 main axis, the peduncle 0.5–1.5 cm long, with 2–3 primary nodes, opposite branching at each. Fruit white when ripe, globose, about 1 cm long. Pyrenes ribbed on back and with endosperm ruminant.

I have had ample opportunity to examine the type material and have found nothing in the herbarium at Lae that matches it to my satisfaction. The specimens most resembling this one are *P. flaviramula*. I am, however, tentatively referring several collections to this taxon at this time.

The species was noted as being abundant on the banks of streams and on swampy ground.

Other Specimens Examined. IJ. Nr Fak-Fak, Kowap, Vink BW 12198 (BO, K, L, LAE). PNG. WH: Baiyer–Jimi Divide, *Sohmer et al.* LAE 75501 (BISH, LAE).

BULLETIN 1: BOTANY

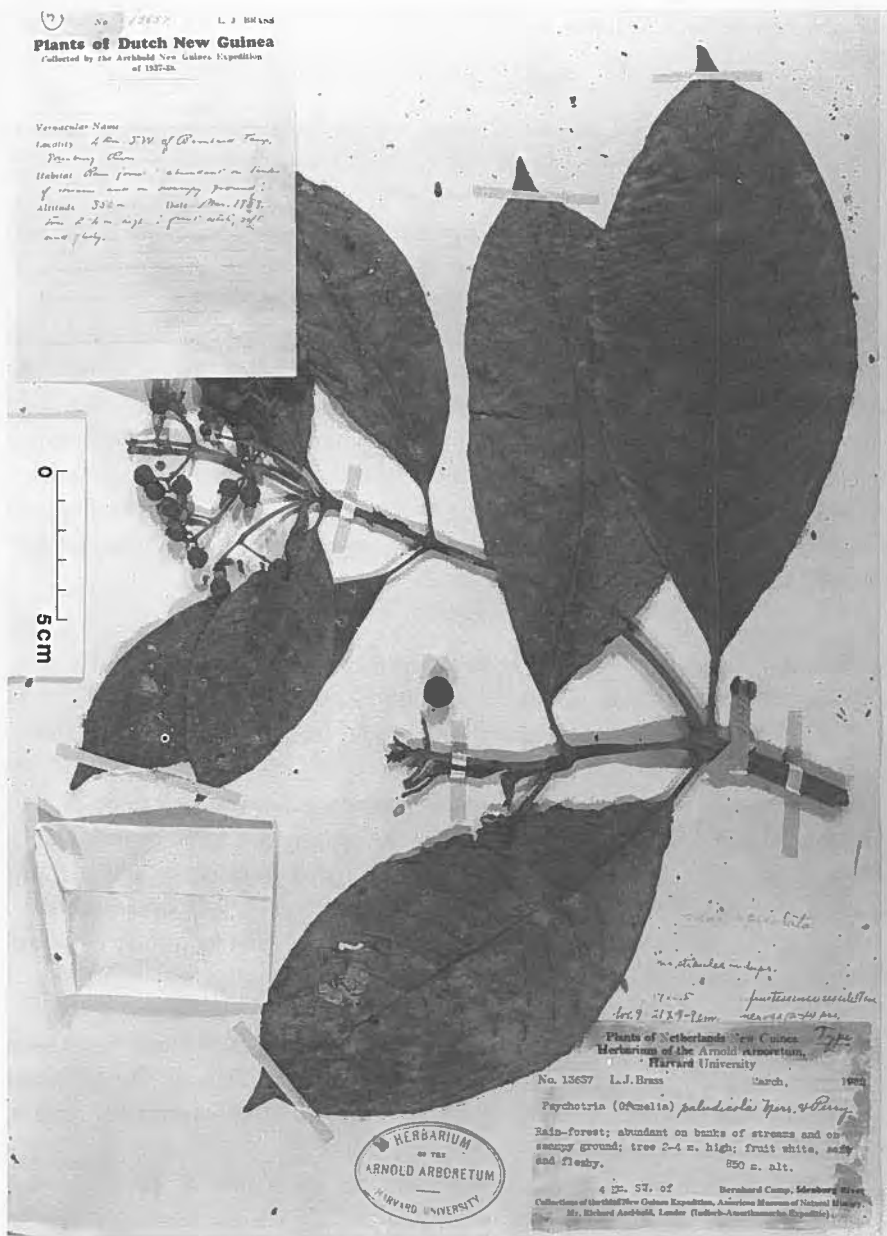


Fig. 91. *Psychotria paludicola*. Brass 13637 (A, holotype).

Distinguishing Features. Relatively large, elliptic leaf blades, lateral veins prominent below, drying light brown; inflorescence with stout main axis, 2 lateral smaller branches from base; fruit white, relatively large.

Psychotria pavairiensis Sohmer, sp. nov. Fig. 92.—Type: *Ridsdale & Lavarack* NGF 31022 (LAE, holotype), PNG: NORTH SOLOMONS PROV: Kieta
Dist: Pavairi, in rain forest, at ca. 900 m, 20 Jan 1967.

Arbores 2.5–3 m altae sunt, stipulis usque ad 8 mm longis calyptratis, novellis ex fissura laterali protrusis, petiolis 0.5–1.5 mm longis, laminis $2 \times 8\text{--}4.5 \times 16$ cm coriaceis anguste oblongis vel elliptico-lanceolatis basi rotundata vel obtusa apice obtuso vel acuto in sicco luteo-viridibus nervis lateralibus 8–10 in dimidio quoque, inflorescentia cum axi principali eramoso per dimidium basalem vel proxima basem ramosa, ramis verticillatis et cymas complures ferentibus, floribus 5- vel 6-meris dimorphicis, pedicellis brevibus, calyce et hypanthio 1–1.5 mm longis, corollis albus subbadis subluteo-albis subtilibus tubo 4 mm longo ad apicem paulum distento fauce extra dense piloso, lobis 1.2–1.5 mm longis ovatis acutis in flore reflexis antheris in floribus pinaceis 1 mm longis, fructibus incognitis.

Small tree 2.5–3 m high. Stipules calyptrate, to 8 mm long, young flowers and leaves emerging laterally. Leaves with petioles 0.5–1.5 mm long; blades coriaceous, narrow, oblong or elliptic-lanceolate, $2 \times 8\text{--}4.5 \times 16$ cm, lateral veins 8–10 per side, apex obtuse or acute, base round to obtuse, drying yellow-green. Inflorescence with 1 unbranched main axis (to 1.2 cm) for $\frac{1}{2}$ length, or branching at or near base, the branches verticillate, more than 1 mm wide, and terminating in several cymules. Flowers 5- or 6-merous, dimorphic, on short pedicels; calyx and hypanthium together 1–1.5 mm; corolla white to brownish or yellowish white, thin in texture, not fleshy, the tube 4 mm long, slightly dilated towards summit, densely hairy within at throat, lobes ovate-acute, 1.2–1.5 mm long, reflexed at anthesis; anthers about 1 mm long in pin flowers. Fruit unknown.

Other Specimens Examined. PNG. NS: Pavairi, *Lavarack & Ridsdale* NGF 31113 (BO, LAE). “New Guinea,” without further data, *Schlechter s.n.* (K).

Distribution. Known only from Bougainville in forests near the 1,000 m elevation line.

Distinguishing Features. Stipules calyptrate; leaf blades oblong to elliptic-lanceolate; corolla tube 4 mm long.

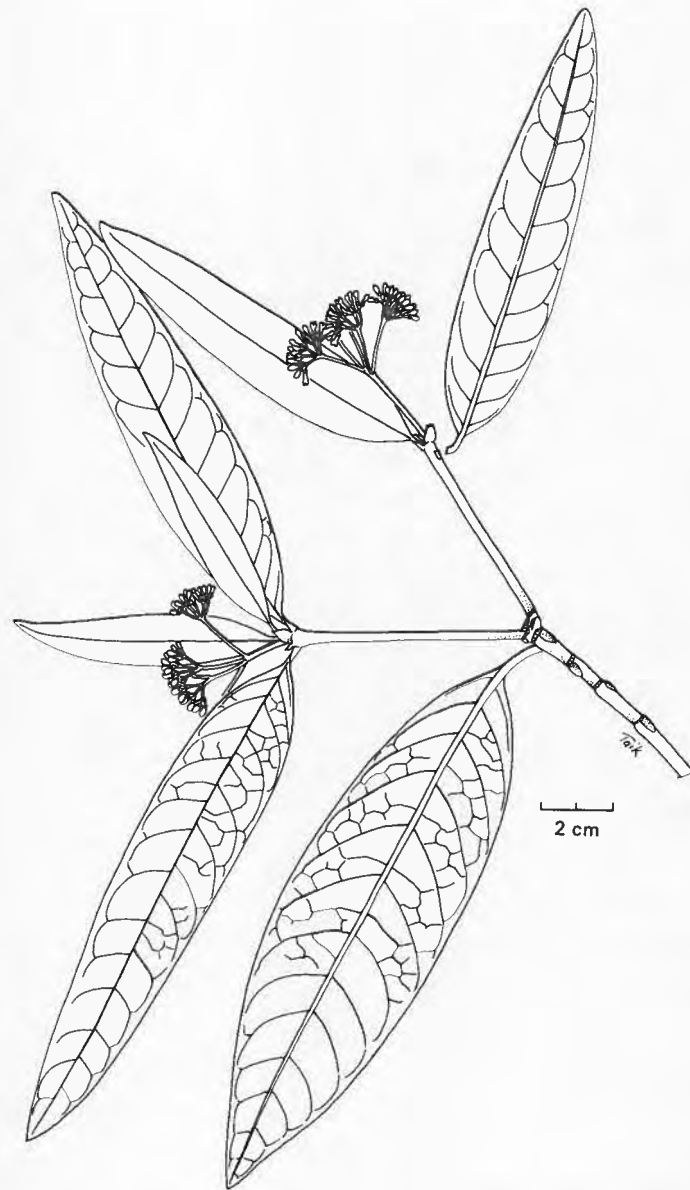


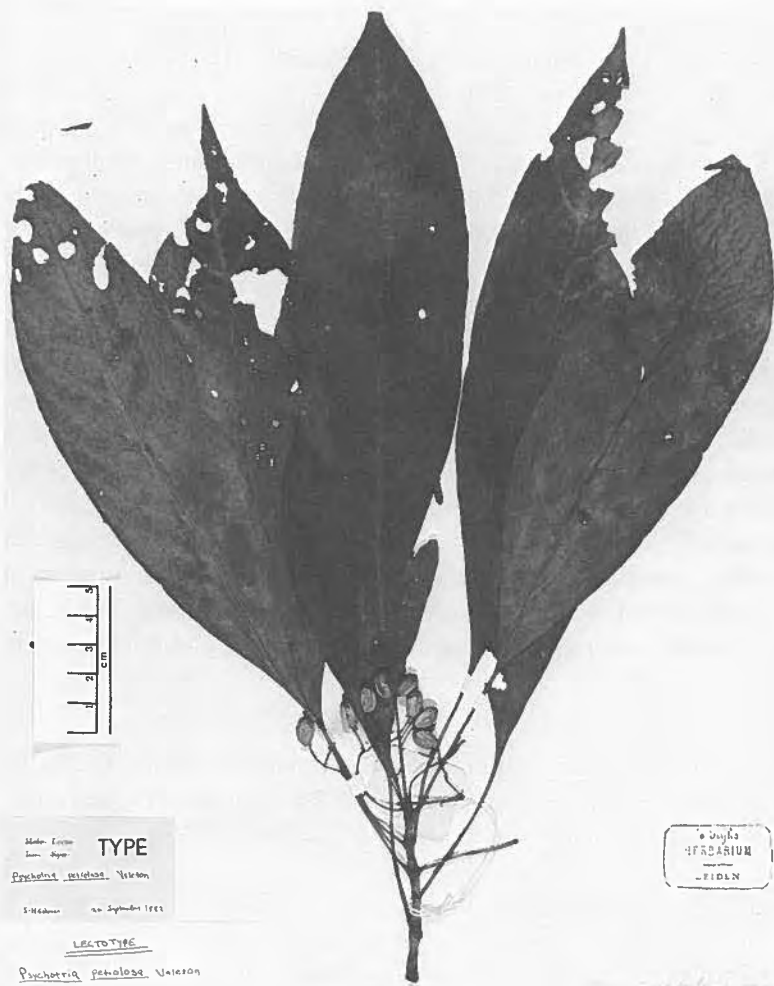
Fig. 92. *Psychotria pavairiensis*. Ridsdale & Lavarack NGF 31022 (LAE, holotype): habit of flowering branch.

Psychotria peekeliana Valetton, Bot. Jahrb. 61: 94 (1927).—Type: *Peekel* 727 (L, holotype—seen as photograph), PNG: NEW BRITAIN PROV: Namatanai nr Nabunai, at 299 m, Oct 1910.

This taxon, based on the published description and the photograph available at Leiden, is essentially the same entity as that I have recognized as *P. multipedunculata*. What has prevented me from combining these taxa is that, according to Valetton (op. cit.), *P. peekeliana* possesses corollas 14 mm long and a calyx 4.5 mm long, which is much larger than in *P. multipedunculata*. The corolla tube in the flowering specimen photographed is 7–8 mm long (the lobes are 3–5 mm long) and the calyx is about 2.5 mm long including the hypanthium. These differences could reflect the manner in which these floral parts were measured (i.e., did Valetton measure the tube and lobes together?) and also to the fact that floral size would depend upon whether the individual produced pin or thrum flowers. I have found that pin flowers tend to be smaller than thrum flowers. The differences could be due to this factor alone, for in nearly every other way, Valetton's taxon and mine are congruous: habitat, leaf size, shape, structure, etc. Until the floral differences can be resolved, however, particularly the size of the calyx, I feel more comfortable in continuing to recognize 2 very closely related taxa.

Psychotria petiolosa Valetton, in Lorentz, Nova Guinea 8: 488 (1911). Fig. 93.—Type: *Atasrip* 180 (Wichmann Expedition) (L, lectotype; BO, isolectotype), IRIAN JAYA: Timmena (= Temena) Riv, Mar 1903.

Small tree or shrub 1–6 m tall, glabrous. Stipules valvate, ovate, to 1 cm long, the midrib prolonged somewhat at the apex, some hair towards the base, the margins ciliate at least when young. Leaves with petioles 4–10 cm long; blades chartaceous to semicoriaceous, glabrous, ovate-elliptic, 7 × 15–13 × 30 cm, lateral veins 14–20 per side, apex acuminate, base acute. Inflorescence wider than long, to 7 × 15 cm, the main axis branched nearly at the base, 2–3 primary nodes with opposite branches at each. Flowers 4- or 5-merous, dimorphic(?), lightly pubescent, on pedicels about 2 mm long; calyx tube cupular, about 1 mm, distinctly delimited from the 0.5–0.8 mm long hypanthium, lobes nearly obsolete, round or obtuse, highly pubescent without; corolla tube 8–9 mm long, lightly pubescent without, within densely villous at base of tube at attachment of filaments, 2–3 mm wide at anthesis, lobes ovate-lanceolate, 3–4 mm long; stamens about 1 mm long, exerted beyond throat of tube at anthesis; style 10–12 mm long(?) in thrum flowers. Fruit white at maturity, ellipsoid, 10–14 mm long (in-



Herbario Nacional de Chile
 Tipo
Psychotria petiolosa Vahlb.
 S. Hahn 26 September 1922

LECTOTYPE
Psychotria petiolosa Vahlb.
 det. S. H. Schauer
 (Hortus Botanicus, Leiden) 26 September 1922

NOTA: Vahlb. haec non est Psychotria in his partibus
 (Vahlb. haec est Psychotria) sed magis est Psychotria
 et in insularibus partibus magis est Psychotria
 et in insularibus partibus magis est Psychotria
 et in insularibus partibus magis est Psychotria
 det. S. H. Schauer
 (Hortus Botanicus, Leiden) 26 September 1922



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Wichmann Expedition
 N. G. EXPEDITION 1901 Prof. WICHMANN.
Psychotria petiolosa Vahlb.
 Non. Ind.
 L. 1922

Fig. 93. *Psychotria petiolosa*. *Atasrip* 180 (Wichmann Expedition) (L, lectotype).

cluding persistent calyx), about $\frac{1}{2}$ as wide. Pyrenes with 3 prominent but round ribs on back, endosperm not runcate.

Other Specimens Examined. IJ. Albatros Bivouac, *Docters van Leeuwen* 9659 (BO, K, L, PNH, SING), 11271 (BO, L); Djayapura, *Koster* BW 1190 (BO, CANB, L, LAE). PNG. WS: Ossima-Krisa Rd, *Streimann & Kairo* NGF 39307 (BO, K, L, LAE); along Watung Riv nr Watung, *Wiakabu et al.* 50033 (BISH). ES: Wagu, *Hoogland & Craven* 10415 (L, LAE); lower Yuat Riv, Kundima Vill, *Pullen* 1788 (CANB, L, LAE).

Distribution. Lowland rain forests from sea level to 100 m across the north-central part of New Guinea. The species, like many others, does not respect the political boundary dividing the island.

Distinguishing Features. Leaf blades chartaceous, obovate-elliptic, large; inflorescence wider than high, nearly sessile; pyrenes with 3 round ribs on back, endosperm not runcate.

Remarks. This species is easy to recognize by the thin, ovate-elliptic leaf blades, inflorescence shape and size, and the ellipsoid, white fruit.

The lectotype at Leiden was annotated by Valeton in 1906. However, Valeton did not cite it in his treatment, nor mention it in the notes he was evidently working up for publication towards the end of his life (it must have been one of those errors we all make from time to time). However, in his own copy of *Nova Guinea* 8, the publication in which the name of this species was published, he added by hand the following (as can best be read, as the ink has been smudged): "Nord Neu Guinea (leg. Atasrip, Wichmann exp. no. 180.)." This demonstrates that the specimen cited is indeed that which he had intended as the basis for the name. In the unpublished notes he also states that the species has not been found again, and disposes of it with one very short paragraph.

Psychotria phaeochlamys (Lauterbach & Schumann) Valeton, Bot. Jahrb. 61: 95 (1927). Figs. 94, 95.

Grumilea phaeochlamys Lauterbach & Schumann, Fl. Deutsch. Schützgeb. Südsee, p. 581 (1901).—Type: *Schlechter* 18996 (S, neotype), PNG: "Kaiser Wilhelmsland."

Small trees 1.5–3 m high. Stipules valvate, not fused at all to each other, ovate-oblong, covered with long, reddish (in vivo and dry) hairs, apex somewhat cleft, the lobes short-acute to short-acuminate. Leaves with petioles

BULLETIN 1: BOTANY

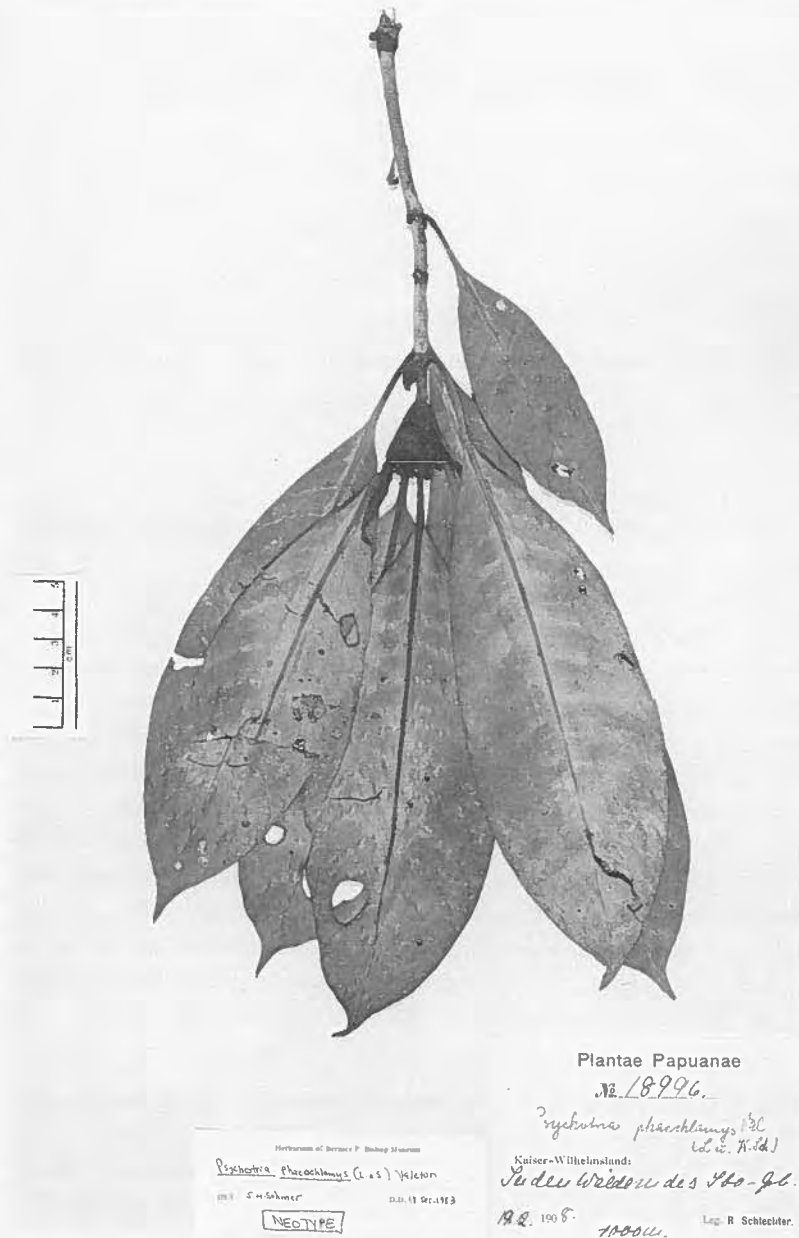


Fig. 94. *Psychotria phaeochlamys*. Schlechter 1896 (S, neotype).

SOHMER: NEW GUINEA AREA *PSYCHOTRIA*

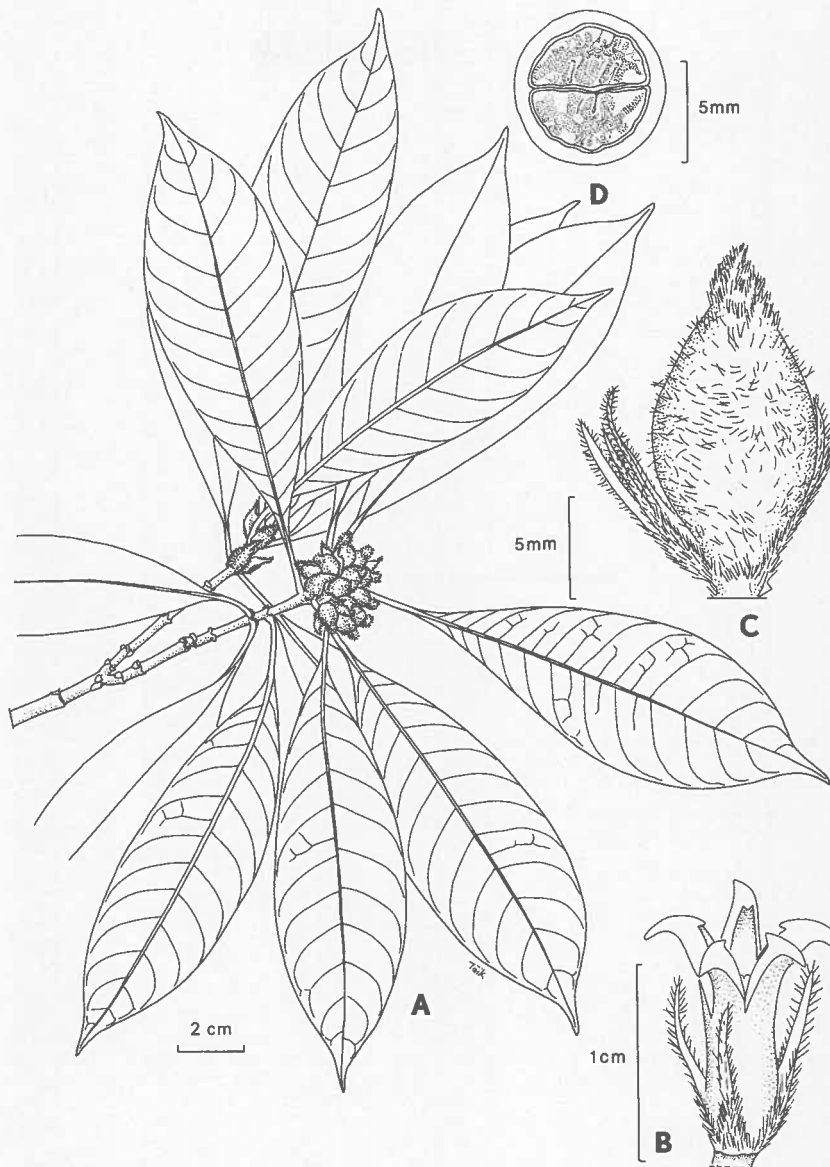


Fig. 95. *Psychotria phaeochlamys*. Sohmer & Katik LAE 75098 (BISH): A, habit of fruiting branch; B, flower at anthesis showing acicular calyx lobes; C, young fruit showing pubescence and bracts; D, fruit x.s.

1.5–4 cm long; blades semicoriaceous, glabrous, oblanceolate to oblanceolate-elliptic, $3 \times 11\text{--}5.5 \times 19$ cm, lateral veins 10–14 per side, apex short acuminate, base attenuate. Inflorescence with a flat receptacle with 10–20 sessile flowers, the whole surrounded and appressed by the coriaceous, ovate stipules, and several membranaceous, hairy involucrel bracts within the stipules, each flower associated with several acicular or aristate and very hairy bracteoles 7–10 mm long. Flowers 5-merous, dimorphic(?); hypanthium about 2 mm long, hairy, calyx tube very short, lobes long, to 3 mm long, very hairy, acuminate; corolla white, very thick and fleshy in texture, completely glabrous without, the tube not dilated towards top, 8–9 mm long, densely hairy within at throat, the lobes lanceolate-subulate, about 5 mm long, reflexed at anthesis. Fruit brown in color when subripe, orange-red when fully ripe, fusiform in shape, 13–14 mm long, not including the persistent calyx often hairy when young. Pyrenes generally smooth but often with minor ribs or convolutions on the back, endosperm prominently ruminant.

Other Specimens Examined. IJ. Waigeo I, *van Royen* 5491 (L); Mamberamo, *Docters van Leeuwen* 11248 (K, L). PNG. WS: Bewani Mts, *Kerenga* 56488 (BISH). M: Ramu Riv nr village of Lae, *Womersley* NGF 24771 (BO, K, L, LAE); Bemal Vill, *Sohmer & Katik* LAE 75159 (BO, LAE); N of Walium, *Sohmer & Katik* LAE 75107 (LAE), LAE 75098 (BISH); Asai Val, *Pullen* 966 (CANB, L, LAE); Usino, *Kerenga & Lelean* LAE 73898 (L, LAE, UPNG); Amiaba Riv, *Foreman et al.* NGF 45866 (L, LAE), NGF 45951 (L). WNB: Pulie Riv, *Henty & Frodin* 27247 (K, L, LAE).

None of the material originally cited by Lauterbach & Schumann appears to be extant. Valeton, however, studied that material and cited 2 Schlechter collections in his treatment. I am herein designating a specimen of 1 of these as neotype.

Distribution. Lowland and alluvial rain forests to 350 m.

Distinguishing Features. Inflorescence sessile, compact with membranaceous, involucrel bracts, bracteoles acicular-aristate, very hairy, associated with the flowers; fruit brown when subripe, orange-red when ripe, fusiform in shape.

Remarks. This species is distinctive due to its sessile flowers, headlike inflorescences, clustered fruits and its abundant covering of long, reddish hairs; the fruits often appearing trimmed with the red hairs due to the persistence of the hairy calyx. It is a small, delicate, symmetrical tree found in wet but well-drained areas of lowland rain forest. There exists a species of what has been called *Cephaëlis* in western New Guinea that bears such a striking resemblance

to *P. phaeochlamys* that the 2 cannot be distinguished in sterile condition. The involucral bracts of *P. phaeochlamys*, however, are quite distinct and are bluish in color.

Psychotria phaeochlamysioides Sohmer, sp. nov. Fig. 96.—Type: Brass 24937 (LAE, holotype; K, L, isotypes), PNG: MILNE BAY PROV: Goodenough I: eastern slopes, in transition oak-rain forest, at 900 m, from a "small tree 3–5 m tall," 25–29 Oct 1953.

Frutices vel arbores parvae 2–5 m alti sunt, stipulis valvatis usque ad 0.5 cm longis ovato-lanceolatis acutis vel obtusis non fissis marginibus ciliatis aliter glabris, petiolis 0.8–1.5 cm longis, laminis $1.5 \times 6-4 \times 11.5$ cm membranaceis chartaceisve oblanceolato-ellipticis varie obovato-ellipticis acuminatis basi attenuata nervis lateralibus 9–12 in dimidio quoque, inflorescentia condensata cum 5–10 floribus subsessilibus ex receptaculo plano (sed in fructu subpedicellatis) bracteis nullis, floribus 4- vel 5-meris dimorphicis(?) hypanthio et calyce 2 mm longis sed pateratis et latioribus usque ad 4 mm latis, lobis obtusis prominentibus, corollis albis carnosis in alabastro angularis in flore 9–10 mm longis tubo non vel paulum in apice dilatato intra piloso, lobis 4–5 mm longis lineari-lanceolatis in flore reflexis, fructibus 9 mm longis obovoideo-fusififormibus licet rubris tubo prominenti calycis excluso, pyrenis incognitis.

Shrubs or small trees 2–5 m tall, twigs glabrous. Stipules valvate, glabrous, ovate-lanceolate, to 0.5 cm long, apex acute or obtuse, not cleft, margins ciliate. Leaves with petioles 0.8–1.5 cm long; blades membranaceous to chartaceous, oblanceolate-elliptic to obovate-elliptic, $1.5 \times 6-4 \times 11.5$ cm, lateral veins 9–12 per side, apex acuminate, base attenuate. Inflorescence compact, with a flat receptacular area with 5–10 nearly sessile flowers (becoming somewhat pedicellate in fruit), without bracts or bracteoles subtending the individual flowers or associated with the inflorescence as a whole. Flowers 4- or 5-merous, dimorphic(?), nearly sessile at anthesis; hypanthium and calyx together bowl-shaped and wider than long, about 2 mm long, to 4 mm wide, the lobes obtuse, prominent; corolla white, fleshy, angled in bud, not much if any dilated towards summit, 9–10 mm long at anthesis, hairy within, the lobes linear-lanceolate, 4–5 mm long, reflexed at anthesis. Fruit probably red at maturity, obovoid-fusifiform in shape, about 9 mm long not including the persistent, prominent calyx tube or the short pedicel. Pyrenes unknown.

Other Specimens Examined. PNG. M: Foreman et al. NGF 48006 (K, L, LAE). MO: Parinin Riv, Womersley NGF 24856 (BISH, BO, CANB, K, LAE,

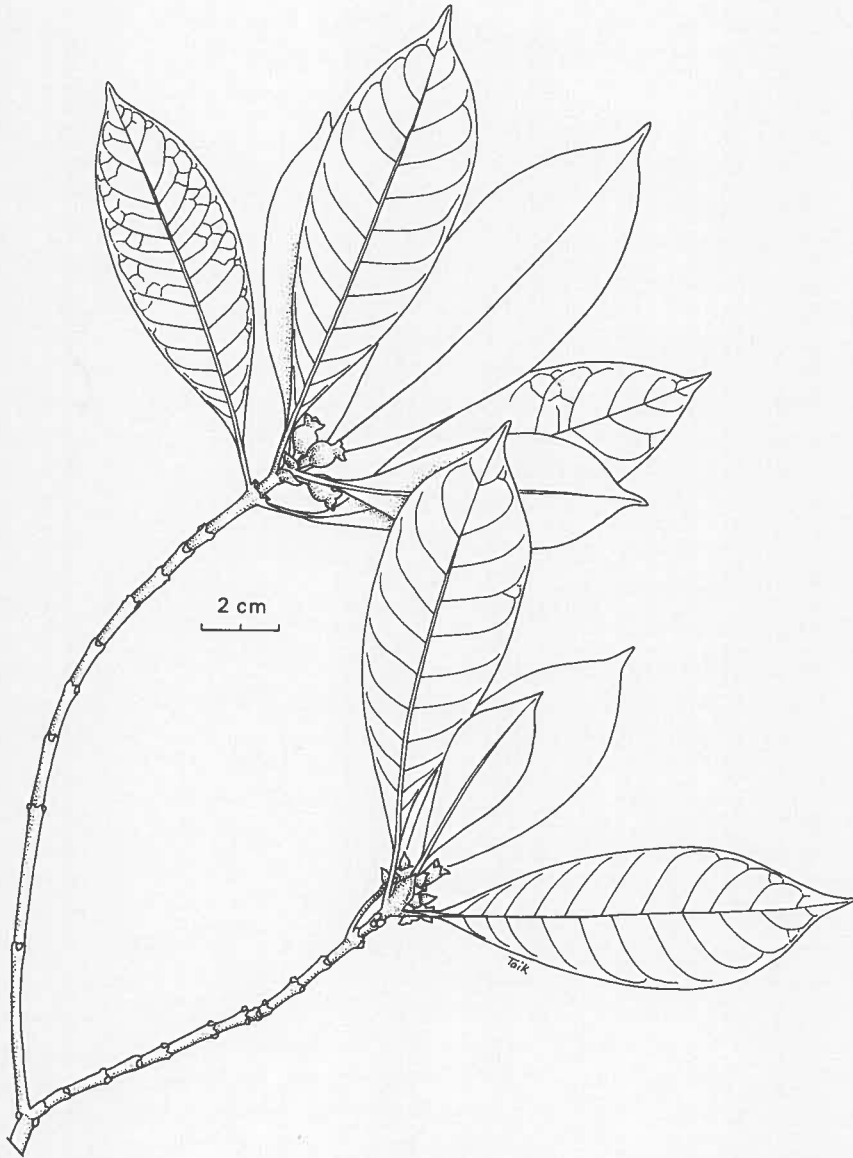


Fig. 96. *Psychotria phaeochlamysioides*. Brass 24937 (LAE, holotype): habit of flowering and fruiting branches.

PNH, SING). MB: Goodenough I, *Brass* 25081 (K, L, LAE), *Croft & Lelean* LAE 71223 (BISH, LAE, UPNG).

Distribution. Distributed in coastal or lowland forests of NE New Guinea up to 900 m.

Distinguishing Features. Inflorescence sessile, compact; flowers sessile or nearly so, and without associated bracts or bracteoles.

Remarks. This species is quite distinct from *P. phaeochlamys*, but the name was chosen because it is often confused with that species in the herbarium. Except for ciliate stipules at the margins, it is glabrous, quite unlike individuals of *P. phaeochlamys*, which have a considerable and prominent amount of reddish hair on most parts, at least of young plants. Actually, *P. phaeochlamysoides* resembles more *P. kairoana*, from which it can be distinguished by the membranaceous-chartaceous leaves and the flowers that are more than twice as large as those of the latter species.

Psychotria pulleniana Sohmer, sp. nov. Fig. 97.—Type: *Pulle* 614 (L, holotype; BO, L, U, isotypes), IRIAN JAYA: Third Dutch Expedition to “Novam Guineam Meridionalem facta,” in “woods on limestone,” at 1,000 m, 25 Nov 1912.

Frutices vel arbores ca. 2 m alti sunt, stipulis valvatis usque ad 3.5 cm longis glabris late ovatis apice fisso lobis acutis vel acuminatis, petiolis 1–2.5 cm longis, laminis ellipticis subobovatis 3.5 × 11.5–5.2 × 15 cm basi acuta varie acuminata apice acuto varie abrupte acuminato in dimidio quoque cum 11–15 nervis primariis suboppositis vel alternatis, inflorescentia saepe trichotoma usque ad 5 cm longa omnibus in cymulis compluribus terminantibus, floribus thrumaceis 4- vel 5-meris dimorphicis(?), pedicellis 1–2 mm longis, hypanthio calyceque 1–1.5 mm longis glabris lobis obtusis brevibus, corollis albis tubo usque ad 6 mm longo extra glabro sed in fauce piloso lobis 2–3 mm longis anguste ovatis in flore reflexis, fructibus incognitis.

Shrubs or small trees about 2 m high. Stipules valvate, glabrous, broadly ovate, to 3.5 cm long, apex cleft, lobes acute to acuminate. Leaves with petioles 1–2.5 cm long; blades glabrous, elliptic, somewhat obovate, 3.5 × 11.5–5.2 × 15 cm, primary veins 11–15 per side, apex acute to abruptly acuminate, base acute to acuminate. Inflorescence often trichotomous with 1 main axis and 2 lateral basal branches to 5 cm long, each branch terminating in several cymules. Flowers



Fig. 97. *Psychotria pulleniana*. Pulle 614 (L, holotype).

4- or 5-merous, dimorphic(?), on pedicels 1–2 mm long; hypanthium and calyx glabrous, 1–1.5 mm long, apex lobes short, obtuse; corolla white, tube glabrous without, hairy at the throat, to 6 mm long, lobes narrowly ovate, 2–3 mm long, reflexed at anthesis. Only thrum flower known. Fruit unknown.

The type collection was originally designated as number 429 but changed to read "614." There is no local reference point given on the specimen label. Both specimens of the collection at Leiden were determined by Valeton (1927) to be *P. multicosata*.

Other Specimens Examined. IJ. Gelvink Bay, Wappe, Janowsky 307 (BO), 330 (BO, L); Mamberamo, Lam 1523 (L); "Irian Jaya," without further data, Mayr 508 (BO). PNG. ES: Mt Turu, Pullen 1455 (CANB). Ce: Subitana, Hartley 10785 (CANB, LAE).

Distribution. Known from elevations between 1,000 and 1,420 m.

Distinguishing Features. Stipules valvate, cleft, large, to 3.5 cm long; leaf blades 5.2–11.5 cm long with lateral veins 11–15 per side.

Remarks. If the fruit is white at maturity, this taxon can be placed in a group with *P. leucococca* based on the large, leaflike, ovate stipules cleft at apex with acute-acuminate apices. It can be distinguished from the latter taxon by its larger leaf blades and 11–15 primary veins per side. I am not certain that this taxon is actually distinct from *P. multicosata*. Comparison of the type specimens at Leiden (holotype for *P. pulleniana* and lectotype for *P. multicosata*) revealed a significant difference in flower size, but this difference may only reflect that the former collection was made from an individual bearing thrum flowers and the latter collection represents a pin individual.

Determining boundaries between these taxa, as well as others closely related, very much depends upon obtaining greater samples of the populations; more material is also needed to determine the significance of such characters as leaf blade size, number of primary veins, and stipular shape and size. If stipular shape and size, for example, are found to be considerably more variable than they are thought to be today, a realignment of species will become necessary and a number of taxa, such as *P. leucococca* and *P. vaeletoniana*, sp. nov., will be combined.

Psychotria purariensis Sohmer, sp. nov. Fig. 98.—Type: Croft et al. LAE 61080 (LAE, holotype; L, isotype), PNG: GULF PROV: Baimuru Dist: Purari Riv: delta area 32.5 mi [52.3 km] W of Baimuru: lowland swamp forest subject

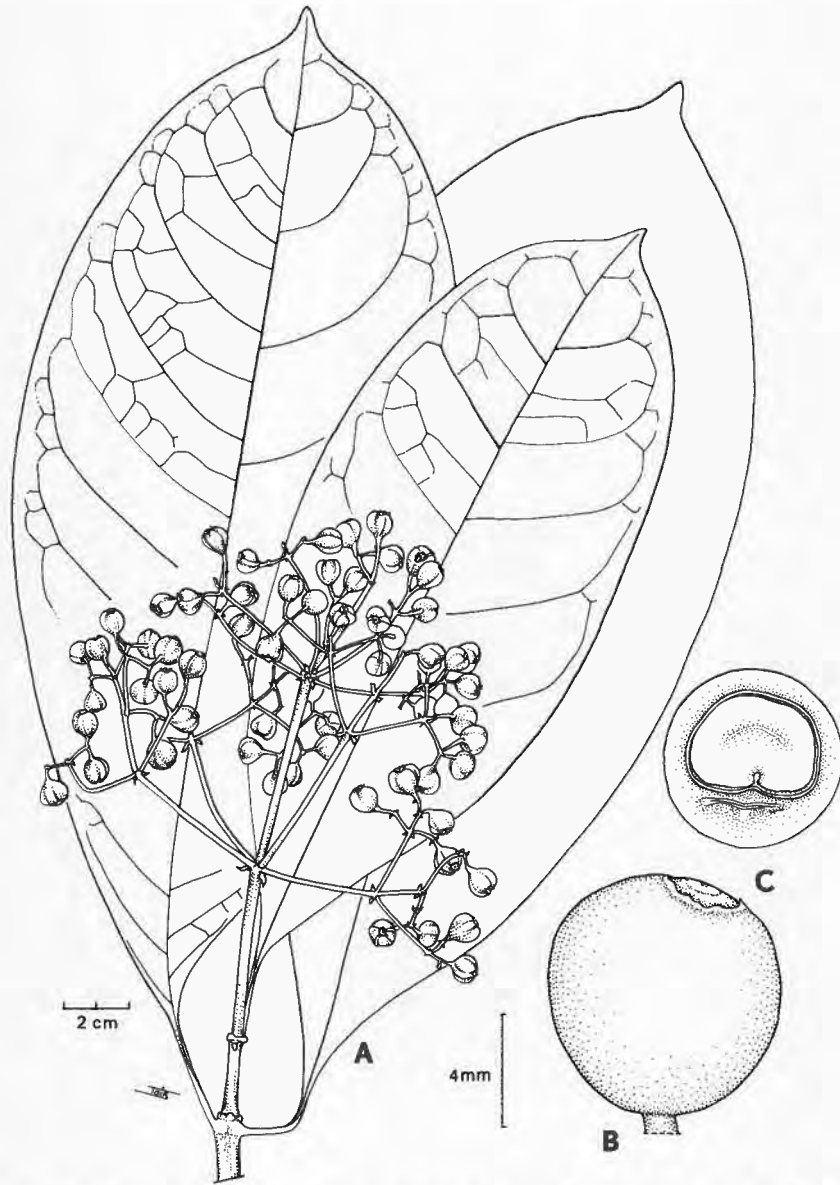


Fig. 98. *Psychotria purariensis*. Croft et al. LAE 61080 (LAE, holotype): A, habit of fruiting branch; B, fruit; C, fruit x.s.

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to flooding, at 5 m, from small tree ca. 2 m high, whose fruit turned red from orange, 24 Mar 1974.

Frutices 0.5–2 m alti sunt, stipulis ovatis acutis usque ad 3 mm longis connatis et tubum formantibus, petiolis 2–4 cm longis, laminis $8 \times 22.5\text{--}13.5 \times 30$ cm delicate membranaceis obovato-ellipticis in basi acuminato-attenuatis in apice acutis vel acuminatis vel apice obtuso in sicco subgriseo-viridibus nervis lateralibus 10–12 in dimidio quoque, inflorescentia cum axi principali 7–10 cm longo $\frac{1}{3}$ – $\frac{1}{2}$ tam longo quam inflorescentiam nodis principalibus 2–3 cum ramis verticillatis eis in uno vel compluri cymis distantibus terminantibus, floribus 5-meris dimorphicis(?), pedicellis usque ad 1 cm longis, calycibus et hypanthiis usque ad 2.5 mm longis apice truncato vel cum lobis acutis minutis, corollis albis tenuibus non carnosus, tubo 3 mm longo intra glabro, lobis 2 mm longis ovato-acutis in flore reflexis antheris 1 mm in floribus pinaceis longis, fructibus 10 mm longis globoso obovoideis rubris, pyrenis in sectione transversali hemisphaericis dorso levi non lirato, endospermo laevi generis simili non ruminato.

Shrubs 0.5–2 m high. Stipules valvate, fused to one another to form a tube or short cylinder, to 3 mm at most, acute. Leaves with petioles 2–4 cm long; blades delicate, thin, membranaceous, obovate-elliptic, $8 \times 22.5\text{--}13.5 \times 30$ cm, lateral veins 10–12 per side, apex acute to acuminate but point blunt, not sharp, base acuminate-attenuate, drying grayish green. Inflorescence with unbranched main axis 7–10 cm long, $\frac{1}{3}$ – $\frac{1}{2}$ length of entire inflorescence, the peduncle over 3 cm long, 2–3 primary nodes with verticillate branching at each, the branches long-stalked and terminating in 1 to several relatively widely spaced cymes. Flowers 5-merous, dimorphic(?), on pedicels to 1 cm long; calyx and hypanthium together to 2.5 mm long, summit truncate or with lobe minute, acute; corolla white, thin, not fleshy, tube about 3 mm long, glabrous within, lobes ovate-acute, about 2 mm long, reflexed at anthesis; anthers about 1 mm long in pin flowers. Fruit red when ripe, globose-obovoid, about 10 mm long. Pyrenes hemispherical in cross section, smooth on back, not ridged, endosperm smooth and homogeneous, not ruminant.

Other Specimens Examined. PNG. G: Wabo dam-site ridge, *Conn et al.* LAE 66298 (LAE); Pide Riv, *Conn et al.* LAE 66349 (LAE).

Distribution. Lowland forests of Gulf Province from sea level to ca. 80 m.

Distinguishing Features. Leaf blades membranaceous and very large (22.5–30 cm long); pyrenes hemispherical in cross section, endosperm smooth, a single invagination in the seed coat on the ventral surface.

Remarks. This taxon is probably closely related to *P. membranifolia*, differing from it by the larger leaves, inflorescence, and fruit. The pyrenes in cross section resemble those of *P. leptothyrsa*. Another species for which it can be mistaken in the herbarium is *P. damasiana*, but the stipules on the latter are calyptrate and not valvate, and the inflorescence in *P. purariensis* is long-pedunculate. In most New Guinea *P. leptothyrsa*, as well as in *P. damasiana*, the inflorescences are generally sessile (without a peduncle or unbranched main axis).

Psychotria ramadecumbens Sohmer, sp. nov. Fig. 99.—Type: *Sohmer, Gideon & Kerenga LAE 75502* (LAE, holotype and isotype), PNG: WESTERN HIGHLANDS PROV: Baiyer Dist: ridge between Baiyer and Jimi valleys, in lower montane forest, on a steep slope in heavy shade, at 1,800 m, 18 Jun 1979.

Frutices decumbenti sunt, ramis 0.2–1 m altis stipulis usque ad 2.5 cm longis glabris vel puberulentis valvatis subspatulatis apice fisso lobis obtusis acutisve, petiolis 2–4 cm longis laminis $3.5 \times 11-7.5 \times 23$ cm chartaceis vel coriaceis subrugosis oblanceolatis basi attenuata vel acuminata apice breve acuto vel acuto-acuminato nervis lateralibus 22–26 alternatis vel oppositis in dimidio quoque, inflorescentia 2.5 cm longa 2 cm lata capitata vulgo a stipulis grandibus et foliis congregatis velatis floribus 5-meris dimorphicis glabris pedicellis 4 mm longis, calyce et hypanthio 3 mm longis corollis albis tubo 7 mm longo intra in fauce villosis ad apicem paulum dilatato lobis 7 mm longis ovato-subulatis in flore reflexis, in floribus pinaceis antheris 2 mm longis, pistilo cum stylo 10 mm longo stigmatibus binis glanduloso-pubescentibus exsertis, fructibus 12 mm longis 7–8 mm latis albis ovoideis, pyrenis laevibus endospermo ruminato.

Shrubs with decumbent branches 0.2–1 m tall. Stipules valvate, glabrous to puberulent, somewhat spatulate, to 2.5 cm long, apex cleft, lobes obtuse to acute. Leaves with petioles 2–4 cm long; blades chartaceous to coriaceous, somewhat rugose, oblanceolate, $3.5 \times 11-7.5 \times 23$ cm, lateral veins prominent, 22–26 per side, prominent below, apex round with a short, acute tip, or acute-acuminate, base attenuate to acuminate. Inflorescence a compact headlike arrangement of flowers to about 2.5 cm long, 2 cm wide, generally hidden by the large stipules and the closely appressed leaves which form a funnellike arrangement around the inflorescence. Flowers 5-merous, dimorphic, glabrous, on pedicels about 4 mm long; calyx and hypanthium together about 3 mm long, lobes irregular, acute; corolla white, the tube not much dilated towards top, about 7 mm long, villous at throat within, lobes ovate-subulate, about 7 mm long (equaling tube), reflexed at anthesis; anthers 2 mm long in pin flowers; pistil with style to 10 mm long in pin flowers, the 2 glandular pubescent stigmas exerted well beyond corolla throat.

SOHMER: NEW GUINEA AREA *PSYCHOTRIA*

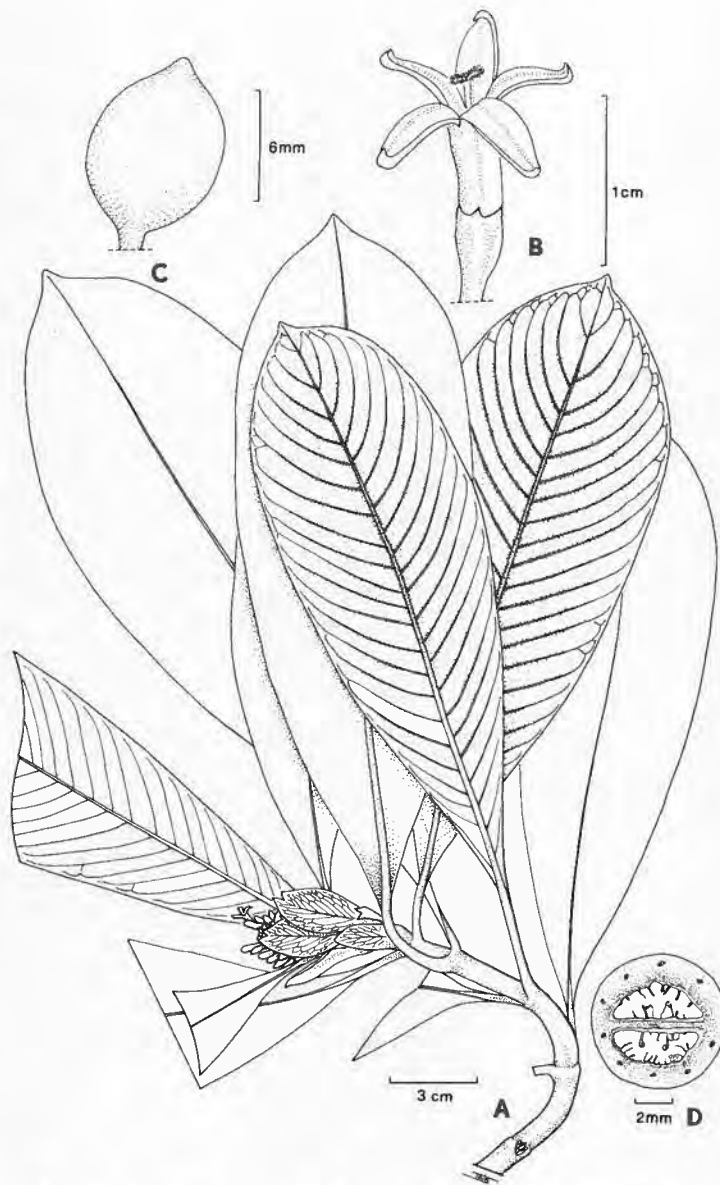


Fig. 99. *Psychotria ramadecumbens*. Sohmer et al. LAE 75502 (LAE, holotype): A, habit of flowering branch; B, pin flower at anthesis; C, young fruit; D, fruit x.s.

Fruit white at maturity, ovoid, about 12 mm long, 7–8 mm wide. Pyrenes without ridges, endosperm ruminatae.

Other Specimens Examined. PNG. WH: Baiyer–Jimi Divide, *Sohmer et al.* LAE 75506 (LAE), LAE 75507 (LAE), LAE 75509 (LAE). Mo: Mumeng, *Streimann* 8332 (UPNG).

Distribution. Common in areas of moist, lower montane forest on somewhat steep and very shaded slopes in the Western Highlands Province and Morobe Province.

Distinguishing Features. Shrubs with decumbent branches; leaf blades with 22–26 lateral veins per side; inflorescence congested and closely appressed by the leaves and stipules; flowers with large corolla tube 7 mm long, lobes equal in size.

Remarks. This is a very distinctive species in habit and morphology. In the field, the branches are decumbent and the leaves a rich dark-green. The flowers are tightly packed into a single headlike inflorescence that is closely appressed by the stipules and leaves; the leaves themselves are congested due to the very short internodes. The reproductive strategy must have something to do with limiting access to the flowers, as they essentially lie at the bottom of a funnel formed by the tightly appressed leaves. One is somewhat reminded of *P. kaniensis* on the basis of the morphology of dried herbarium material.

Psychotria ramuensis Sohmer, sp. nov. Fig. 100.—Type: *Sohmer & Katik* LAE 75114 (LAE, holotype), PNG: MADANG PROV: Ramu Dist: Walium Patrol Post area, in rain forest on the slope of a ridge, at ca. 250 m, 19 Apr 1979.

Arbores 3–8 m altae sunt, stipulis valvatis ovatis glabris (in var. *pubescentia* pubescentibus?) usque ad 1 cm longis non fissis apice rotundato marginibus laevibus petiolis 2–5 cm longis crassis, laminis 8×18 – 14×32 – 15.5×23 cm coriaceis glabris vel pubescentibus oblongo-ellipticis oblongo-obovati elliptico-rotundatisve basi cordata vel subtruncate apice obtuso acutove nervis lateralibus 11–14 in dimidio quoque, inflorescentia cum axi principali solitario usque ad 13 cm longa dimidio basali eramoso nodis primariis 2–3 cum ramis verticillatis ramis duplo ramosis et 2–3 cymulis ferentibus, axibus omnibus vulgo puberulentis, floribus incognitis, fructibus ca. 5 mm longis globoso-obovoideis rubris, pyrenis, laevibus endospermo ruminato.

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Fig. 100. *Psychotria ramuensis* var. *ramuensis*. Sohmer & Katik LAE 75114 (LAE, holotype): habit of fruiting branch.

Trees 3–8 m high. Stipules valvate, glabrous (pubescent in var. *pubescentia*?), ovate, to 1 cm long, apex round, not cleft, margins smooth. Leaves with petioles 2–5 cm long, stout; blades coriaceous, glabrous or pubescent below, oblong-elliptic or oblong-obovate to elliptic-rotund, 8 × 18–14 × 32–15.5 × 23 cm, lateral veins 11–14 per side, apex obtuse to acute, base cordate or nearly truncate. Inflorescence with 1 main axis to 13 cm long, unbranched ½ its length from base, 2–3 primary nodes with verticillate branching at each, the branches branched 2 × more terminating in 2–3 cymules, all axes usually puberulent. Flowers unknown. Fruit red when ripe, globose-obovoid, about 4–5 mm long. Pyrenes smooth on back, no ribs or ridges, endosperm ruminant.

Distinguishing Features. Leaf blades large, over 18 cm long, usually broadly elliptic obovate, cordate at base.

Remarks. This species is distinctive by its broadly elliptic leaf blades, which are normally cordate at base. There are apparently 2 varieties: the coastal, nominate variety, and a higher elevation variety. The varieties can be separated by the following key:

1. Leaf blades generally elongate-elliptic, or oblong-elliptic, glabrous below
 var. *ramuensis*
 Leaf blades generally broadly elliptic to nearly rotund, pubescent below
 var. *pubescentia*

Psychotria ramuensis var. *ramuensis*

Trees 5–8 m tall. Leaf blades glabrous below, oblong-elliptic to oblong-obovate, 8 × 18–14 × 32 cm.

Other Specimens Examined. PNG. WS: Ossima–Krisa Rd, *Streimann & Kairo* NGF 39308 (LAE). M: N of Walium, *Sohmer & Katik* LAE 75112 (LAE), LAE 75113 (LAE); Rurunat Vill, *Kuduk RK5* (UPNG). Mo: Sangkwep Riv, *Henty* NGF 14767 (LAE); Sangkwep logging road, *Katik & Lelean* LAE 56363 (LAE).

Distribution. From sea level to ca. 250 m in West Sepik, Madang, and Morobe provinces; apparently restricted to lowland rain forest on well-drained slopes.

Psychotria ramuensis var. *pubescentia* Sohmer, var. nov. Fig. 101.—Type: *Streimann & Kairo* NGF 26106 (BFC, holotype; BO, K, L, LAE, SING, isotypes), PNG: MOROBE PROV: Lae Dist: Koneipa, Kipu in montane forest at the edge of a garden clearing, at ca. 800 m, 6 Jan 1966.

Arbores 3 m altae sunt laminis 7.2×11.5 – 15.5×23 cm late ellipticis varie suboblongo-rotundatis infra pubescentibus.

Trees about 3 m high. Leaf blades broadly elliptic to nearly oblong-rotund, 7.2×11.5 – 15.5×23 cm, pubescent below.

Other Specimens Examined. IJ. Djayapura, *Kostermans & Soegeng* 492 (BO, K, L).

Distribution. Known at present only from Morobe Province.

Distinguishing Features. As the nominate variety but with leaf blades broader and pubescent below.

Remarks. The variety is most likely a higher elevation variation of the nominal variety. The specimen at BFC was much better than that at Lae; therefore I designated it as holotype.

Psychotria ramulosa Merrill & Perry, J. Arnold Arbor. 27: 201 (1946). Fig. 102—Type: *Brass* 12396 (A, holotype; BM, BO, L, isotypes), IRIAN JAYA: Bernhard Camp, Idenburg Riv, in rain forest in open undergrowth of a ravine, at 1,500 m, from a much-branched tree 2–4 m high, Jan 1939.

Psychotria kanehirae Merrill & Perry, J. Arnold Arbor. 27: 199 (1946).—Type: *Kanehira & Hatusima* 12248 (A, holotype; BO, isotype), IRIAN JAYA: Dalman: 45 km inward from Nabire, at 500 m, 3 Mar 1940.

Trees 2–7 m tall. Stipules valvate, membranaceous, glabrous, broadly obovate, 1–2.2 cm long, apex prominently cleft, margins entire or ciliate. Leaves with petioles 1–4 cm long; blades coriaceous, glabrous below, or with pubescence along midrib, oblanceolate to obovate-elliptic, 4×9 – 5×14.5 – 8×21 cm, lateral veins 11–18 per side, apex acuminate to acute, base acuminate. Inflorescence white, conspicuous, 13–20 cm long, equaling, smaller or overtopping the subtending leaves, 1 main axis unbranched $\frac{1}{4}$ – $\frac{1}{2}$ its length from base, primary nodes 3–4 with verticillate, or sometimes opposite, branching at each, each branch subtended by an ovate-subulate bract usually no more than 0.5 cm long, but at

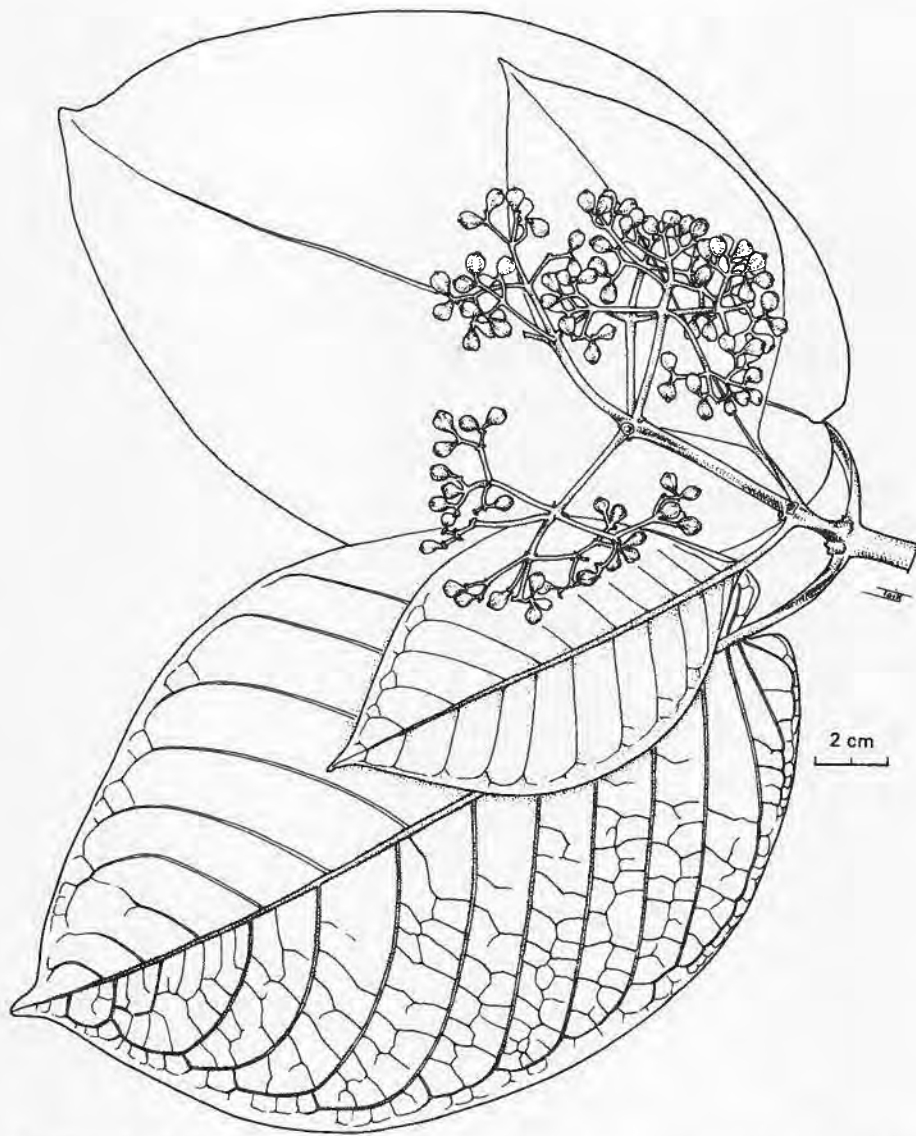
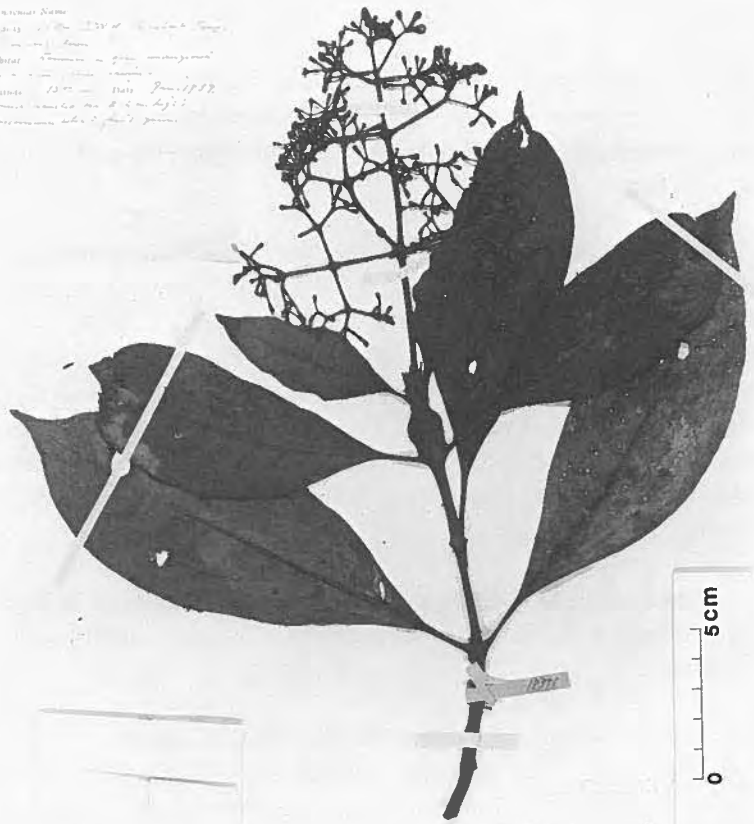


Fig. 101. *Psychotria ramuensis* var. *pubescentia*. Streimann & Kairo NGF 26106 (BFC, holotype): habit of fruiting branch.

SOHMER: NEW GUINEA AREA *PSYCHOTRIA*

Plants of Dutch New Guinea
collected by the Archbold New Guinea Expedition
of 1931-36

Psychotria
No. 12396
1. J. Brass
Psychotria ramulosa
12396
1. J. Brass
1936
New Guinea
Mamberamo delta



No. 12396
Plants of Netherlands New Guinea
Herbarium of the Arnold Arboretum,
Harvard University
No. 12396 J. J. Brass
Psychotria ramulosa
Much branched "tree" ...
pl. fruit ...
Herbarium Comp. No.
Collection of the Dutch New Guinea Expedition, 1931-36
Dr. H. G. A. van der Velden, Director of the Botanical Garden, Batavia

Fig. 102. *Psychotria ramulosa*. Brass 12396 (A, holotype).

least in 1 case to 1.2 cm long, side branches branching 2–4 times and terminating in discrete cymules, branches glabrous and often fleshy. Flowers 5-merous, dimorphic(?), glabrous, on small pedicels; hypanthium about 1 mm long, dilated towards top; calyx saucer-shaped, flaring, less than 0.5 mm long, lobes small, obtuse; corolla white, tube glabrous without and densely villous within, 3–4 mm long, lobes 1.5–2 mm long; anthers 1–1.5 mm long in pin flowers; pistil with style about 3–4 mm long in pin flowers. Fruit white at maturity, obovoid-ellipsoid, 5–6 mm long, about 4 mm wide. Pyrenes with 3 weak ridges on back, endosperm somewhat ruminant.

Other Specimens Examined. IJ. Orion Mts, Tenma Riv, Kalkman 4077 (BO, CANB, LAE, PNH). PNG. WS: Busilmin, Barker LAE 66783 (L); without further data, Henty NGF 20833 (BO, CANB, K, L, LAE, SING). ES: Wagu, Hoogland & Craven 10499 (LAE); Mt Hunstein, Hoogland & Craven 10837 (L, LAE). EH: Arau, Brass 31971 (BO, K, NY); Kassam, Brass 32386 (K, L). SH: Hedemari area, Powell 2438 (UPNG). MB: hills behind Kaporika Vill, Larivita & Katik LAE 67158 (LAE); Misima I, Brass 27531 (L, LAE); Rossel I, Brass 28324 (C, K, LAE, S). "Papua New Guinea," without further data, Barker LAE 66783 (L).

Distribution. Widely distributed in New Guinea from Irian Jaya to Milne Bay Province in Papua New Guinea; usually in mid to upper middle elevational forests.

Distinguishing Features. Leaf blades obovate, elliptic, usually 9–14.4 cm long, lateral veins 11–18 per side; inflorescence white, often longer than subtending leaves, flowers of ultimate cymules spreading widely from each other.

Remarks. I have been able to refer several recent collections to *P. ramulosa* that begin to fill the morphological gap between the 2 taxa described by Merrill & Perry (op. cit.). The differences in stipular texture and the branching of the inflorescence noted by the authors (verticillate in *P. ramulosa*, opposite in *P. kanehirae*) is too variable to distinguish them. This taxon is representative of a closely related group of taxa related directly, I believe, to *P. micrococca*. I was indeed tempted to refer *P. ramulosa* to the latter taxon but did not do so because the stipules are larger and tend to be cleft at the apex in the *P. ramulosa* complex, whereas in *P. micrococca* they tend to be smaller, less than 1 cm usually, and acute or acuminate or at most minutely cleft at apex. The white inflorescences and white fruit of both groups tend to unite them. *Psychotria ramulosa*, along with such species as *P. longipaniculata*, sp. nov., and *P. vanimoensis*, sp. nov.,

are similar in sharing white inflorescences, relatively large leaves and stipules, and having flowers usually larger than those of the *P. micrococca* group. These also tend to be midelevational taxa found between 1,000 and 2,000 m. Most individuals of *P. micrococca* are found in lowland, coastal forests.

Psychotria randiana Merrill & Perry, J. Arnold Arbor. 27: 198 (1946). Fig. 103.—
Type: Brass 4607 (A, holotype; BO, isotype). PNG: NORTHERN PROV:
Wharton Range, Murray Pass.

Shrubs or small trees 0.4–4 m tall, glabrous. Stipules valvate, narrowly to broadly obovate or ovate-oblong, to 2 cm long, apex round or obtuse, generally not cleft. Leaves with petiole 0.3–2.8 cm long; blades semicoriaceous to coriaceous, not rugose, glabrous, oblanceolate-obovate to elliptic, 1.7 × 5–6 × 18.5 cm, lateral veins 7–17 per side, apex obtuse, acute or nearly mucronate in some cases, base acute, acuminate-attenuate. Inflorescence 2–9 cm long, either 1 main, stout, pendent axis or 1 main and 2 smaller, but similar, axes from base, the axes are branched $\frac{1}{2}$ – $\frac{3}{4}$ of the length from base, 1–4 primary nodes with opposite or verticillate branching at each, terminated by somewhat widely spread cymules, the inflorescence generally symmetrical and pyramidal in shape. Flowers 4- or 5-merous, dimorphic, on short pedicels often with a short, acute bracteole at base of flower near top of pedicel; calyx and hypanthium together 2–3 mm long, lobes acute, or acuminate; corolla white, semifleshy, glabrous without, tube 4.5–9 mm long, somewhat hairy within and somewhat expanded towards the summit, lobes linear-subulate to ovate-subulate, 4–6 mm long, reflexed at anthesis; anthers 1–2 mm long in pin flowers, 2 mm long in thrums, exserted in the latter 1–3 mm beyond the corolla tube throat, dorsifixed; pistil with stigmas exserted 1–3 mm beyond corolla tube. Fruit white at maturity, ellipsoid-globose to ovoid-globose, 5–10 mm long. Pyrenes without conspicuous ribs or ridges, endosperm ruminant.

After studying the types and other specimens I have come to the conclusion that there are 3 varieties of this taxon. These can be separated most of the time by the following key:

1. Inflorescence often strongly reflexed, the primary axis stout, 2–4 mm wide at base var. *randiana*
 Inflorescence never strongly reflexed, although sometimes lax, the primary axis usually less than 2 mm wide at base 2
2. Leaf blades 10–18.5(–23) cm long, 12–17 lateral veins per side; inflorescence often with 2 lateral branches from base and often with verticillate secondary branching var. *tafaensis*

BULLETIN 1: BOTANY

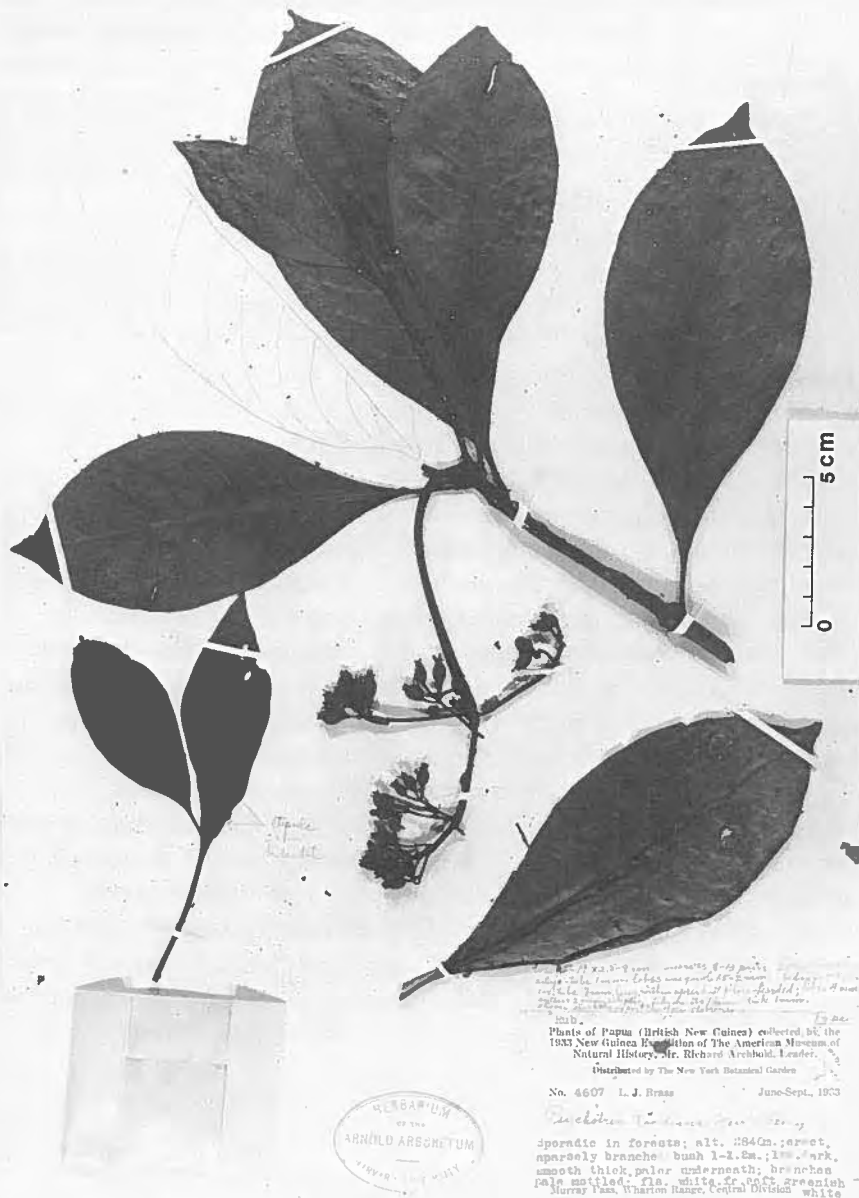


Fig. 103. *Psychotria randiana* var. *randiana*. Brass 4607 (A, holotype).

SOHMER: NEW GUINEA AREA *PSYCHOTRIA*

Leaf blades usually less than 10 cm long and usually with fewer than 12 lateral veins per side; inflorescence without 2 lateral branches from base of main axis, secondary branching opposite var. *misimensis*

Psychotria randiana var. *randiana*

Shrubs or small trees 0.4–3 m tall, glabrous. Stipules valvate, glabrous, generally broadly obovate, to 2 cm long, summit round, rarely cleft. Leaves with petioles 0.8–2.8 cm; blades coriaceous, generally oblanceolate-obovate, 3 × 8.5–6.8 × 15.5 (–8 × 24) cm, lateral veins 11–12 per side, apex a short, acute tip, nearly mucronate in some cases, base acuminate-attenuate. Inflorescence often with a long peduncle (unbranched main axis) to 9 cm long (generally 2–6 cm long), strongly reflexed, pendent or lax in flower and fruit, 1–2 primary nodes with opposite branches at each, the branches terminated by somewhat widely spread cymules. Flowers 5-merous, dimorphic, glabrous, on short pedicels with bracteole short, acute at base of flower near top of pedicel; hypanthium and calyx together about 3 mm, lobes acute, short at summit; corolla white, semifleshy, tube 5–9 mm long, somewhat hairy within, lobes ovate-subulate, 3–4 mm long, reflexed at anthesis; anthers of thrum flowers about 2 mm long, exerted about 1–2 mm beyond corolla tube throat. Fruit white at maturity, ovoid-globose, 10–12 mm long, crowned by persistent calyx. Pyrenes perfectly smooth, no ridges or convolutions, endosperm ruminant.

Other Specimens Examined. PNG. SH: Lake Kutubu, Gillison & Kairo NGF 25791 (BFC, BISH, BO, CANB, K). Mo: Mt Kaindi, Allison WEI 945 (LAE), WEI 1139 (LAE); nr Garaina, Hartley TGH 12767 (A, CANB, L, LAE); Edie Crk, Ridsdale NGF 30209 (LAE); Aseki Rd, Sohmer & Kerenga LAE 75220 (LAE); Spreader Divide, Schodde & Craven 4903 (CANB). Ce: nr Kerau Mission, Frodin 688 (LAE); Mt Kenive, Croft et al. LAE 65022 (LAE), Kagi Gap area, Croft & Lelean NGF 34726 (BISH, K, LAE), Carr 13743 (CANB, L); Woitape-Kosipi Rd, Buderus NGF 20735 (BO, CANB, K, LAE); Murray Pass, Ridsdale NGF 36835 (LAE), NGF 36942 (CANB, K, LAE). MB: Mt Suckling, Stevens & Veldcamp LAE 54188 (CANB, K, L, LAE), LAE 55516 (LAE), LAE 55519 (LAE).

Distribution. Montane forests between 1,800 and 3,200 m. Widely distributed in the Highlands and the mountain ranges of the eastern half of New Guinea.

Distinguishing Features. Stipules obovate, large, to 2 cm long; leaf

blades smooth, glabrous, obovate-oblongate; fruit white; pyrenes without ridges or ribs, endosperm ruminant.

Remarks. This taxon can be easily recognized by the long-pedunculate inflorescence with pendent or reflected flowers and fruit, but the peduncle length is variable. It probably is most closely related to *P. chonantha*, whose stipular shape and form and dark green, glossy foliage it shares. The latter often also has long-peduncled inflorescences. The leaves in *P. randiana*, however, tend to be larger than those in *P. chonantha* and are obovate or oblongate as a rule.

Psychotria randiana* var. *tafaensis (Merrill & Perry) Sohmer, **comb. nov.** Fig. 104. *Psychotria tafaensis* Merrill & Perry, J. Arnold Arbor. 27: 201 (1946).—Type: Brass 4838 (A, holotype; BM, BO, isotypes), PNG: CENTRAL PROV: Mt Tafa, at 2,400 m.

Stipules to 1.5 cm long. Leaves with petioles 1–2 cm long; blades 4 × 10–6 × 18.5 cm, lateral veins 12–17 per side, often drying reddish brown. Inflorescence usually trichotomous from base (1 main axis and 2 lateral ones), each unbranched $\frac{1}{2}$ – $\frac{3}{4}$ length from base, 2–3 primary nodes with verticillate branching at each. Flowers with calyx with lobes acute at summit; corolla tube 4.5–5 mm long; anthers to 1.5 mm long, exerted about 1 mm beyond throat of corolla tube in thrum flowers. Fruit 7–8 mm long.

Other Specimens Examined. PNG: EH: Daulo Pass, *Sohmer et al.* LAE 75460 (LAE); Mt Michael, *Sohmer et al.* LAE 75449 (LAE); Marafunga, *Stone* LAE 53301 (LAE). Mo: Mt Kaindi, *Pratt* WEI 995 (LAE), WEI 996 (LAE), *Ridsdale* NGF 30224 (LAE); Mt Missim, *Sohmer & Gideon* LAE 75258 (BISH, L), LAE 75259 (BISH, L), LAE 75260 (BISH, L); Aseki Rd, *Sohmer & Kerenga* LAE 75206 (LAE), LAE 75216 (LAE), LAE 75218 (LAE), LAE 75237 (LAE); Kaisinik logging area, *Sohmer & Kerenga* LAE 75249 (LAE). Ce: Woitape–Kosipi Rd, *van Royen* NGF 20210 (LAE); Lake Myola, *Croft & Lelean* NGF 34950 (BISH, K, LAE). MB: Mt Dayman, *Brass* 22864 (L).

Distribution. Montane forests from ca. 2,100 to 2,400 m.

Distinguishing Features. Stipules narrowly obovate, not cleft; leaf blades elliptic; inflorescence often trichotomous from base; corolla lobes and tube each 4–5 mm long.

SOHMER: NEW GUINEA AREA PSYCHOTRIA

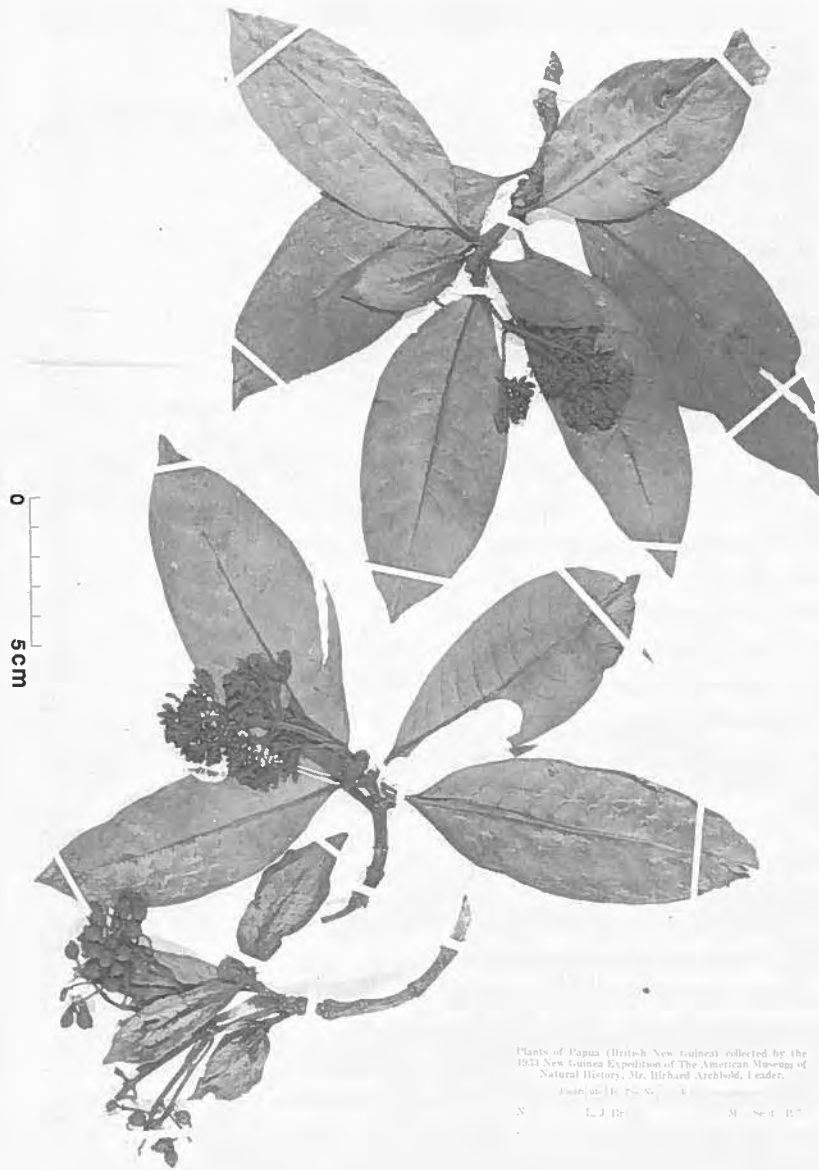


Fig. 104. *Psychotria randiana* var. *tafaensis*. Brass 4838 (A, holotype).

Psychotria randiana var. *misimensis* (Merrill & Perry) Sohmer, comb. nov. Fig. 105.

Psychotria misimensis Merrill & Perry, J. Arnold Arbor. 27: 203 (1946).—Type: *Stevens s.n.* (A, holotype), PNG: MOROBE PROV: Mowlee Dist: Mt Missim, ca. 1,850 m.

Shrubs about 2 m high. Stipules to 1 cm long. Leaves with petioles 0.3–1 cm long; blades $1.7 \times 5\text{--}4.7 \times 11.6$ cm, lateral veins 7–12 per side. Inflorescence usually with a long peduncle, i.e., the main axis unbranched $\frac{1}{2}\text{--}\frac{2}{3}$ its length from base, 2–4 primary nodes with opposite branching at each, the branches to 5.5 cm diminishing in size towards the top of the main axis, resulting in a symmetrical pattern. Flowers with calyx and hypanthium together about 2 mm long, lobes acute to acuminate; corolla tube 5–5.5 mm long; anthers about 1.5 mm long in pin flowers, 2 mm long in thrum flowers, exerted about 3 mm beyond the corolla tube throat. Fruit ellipsoid-globose, 5–7 mm long. Pyrenes without ridges or ribs.

Other Specimens Examined. PNG. C: Pengagl, Millar & Sayers NGF 23698 (LAE). Mo: Mt Kaindi, Allison AA-NG 173 (LAE), WEI 1352 (LAE), Frodin et al. UPNG 6538 (UPNG), Streimann NGF 30880 (LAE); Bulldog Rd, Allison WEI 1336 (BISH, LAE), Kerenga LAE 74492 (BISH, LAE), Pratt TRP-NC-176 (BISH, LAE); Edie Creek, van Royen NGF 16019 (BO, K, LAE), Womersley NGF 13500 (LAE); Mt Missim, Pratt s.n. (BISH); Mt Shungol, Sayers TGH 12538 (CANB, K, LAE).

Distribution. Apparently restricted to areas near Wau in Morobe Province, and to Pengagl in Chimbu Province; in montane forests from ca. 1,850 to 2,650 m.

Distinguishing Features. Leaf blades coriaceous, usually less than 12 cm long; inflorescence with a relatively long peduncle; flowers relatively large, corolla lobes linear-oblong, 4–6 mm long; fruit white.

Remarks. The large flowers and white fruit combined with the small, coriaceous leaves make this a relatively distinctive taxon.

Psychotria reflexapedunculata Sohmer, sp. nov. Fig. 106.—Type: *Sohmer LAE 75064* (LAE, holotype; BISH, BO, LAE, isotypes), PNG: MILNE BAY PROV: Misima Dist: Rossel I: track along SW ridge of Rossel Mt to junction with Abaleti-Jinju track, at ca. 700 m, 19 Mar 1979.

SOHMER: NEW GUINEA AREA PSYCHOTRIA



Fig. 105. *Psychotria randiana* var. *misimensis*. Stevens s.n. (A, holotype).



Fig. 106. *Psychotria reflexapedunculata*. Sohmer LAE 75064 (LAE, holotype): A, habit; B, fruit x.s.

SOHMER: NEW GUINEA AREA PSYCHOTRIA

Plantae lignosae usque ad 2 m altae sunt rhizomis assurgentibus et caules graciles glabris formanti, stipulis valvatis usque ad 5 mm longis lanceolatis acutis laevibus glabris in apice non fassis petiolis 2-7 cm longis, laminis $3 \times 16-10.5 \times 27.5$ cm chartaceis varie coriaceis (in vivo crassis carnosis) basi obtusa varie acuta apice plerumque longo acuminato inflorescentia reflexa floribus infra folius exsertis, axi principali usque ad 15 cm longo nodis primariis 4-6 cum ramis oppositis verticillatisve, bracteis usque ad 1 cm longis lineari-acicularibus, ramis semel vel plus ramosis ramulis in ultimis irregularibus cymarum terminantibus, floribus 5-meris dimorphicis(?), pedicellis brevius glabris, hypanthio minus que 1 mm longo, calyce pateriformi lobis obtusis corollis albis cereis tubo 6-7 mm longo non expanso intra piloso lobis 2 mm longis ovatis acutis reflexis, antheris 1.5 mm longis, pistilo incluso (in floribus thrumaceis), stigmatibus 1.5-1.8 mm longis, fructibus 5 mm longis ellipsoideo-globosis albis, pyrenis in dorso cum costis irregularibus, endospermo ruminato.

Unbranched woody plants to 2 m tall, proliferating by a rhizome that turns up to produce a stem and from whose axis a new rhizome is developed, slender, glabrous. Stipules valvate, smooth, glabrous, lanceolate-acute, to 5 mm long, not cleft at summit. Leaves with petioles 2-7 cm long; blades chartaceous to coriaceous (thick and fleshy in vivo), $3 \times 16-10.5 \times 27.5$ cm, lateral veins 12-17 per side, apex usually long-acuminate, base obtuse to acute. Inflorescence reflexed, flowers displayed below the leaves, the main axis to 15 cm long, 4-6 primary nodes with opposite or verticillate branching at each, the branches subtended by linear-acicular bracts to 1 cm long, usually branching once more, the ultimate branches terminating in irregular groups of cymules. Flowers 5-merous, dimorphic(?), glabrous, on short pedicels; hypanthium less than 1 mm; calyx about 0.5 mm, bowl-shaped, lobes obtuse; corolla white, neither thick nor thin in texture, waxy, the tube not expanded towards the summit, 6-7 mm long, of one uniform width, hairy within, the lobes ovate-acute, about 2 mm long, reflexed at maturity; anthers about 1.5 mm long; pistil with style and stigmas included (in thrums?), the stigmas relatively large, 1.5-1.8 mm long. Fruit white at maturity, ellipsoid-globose, 5 mm long. Pyrenes with irregular ribs on back, endosperm ruminant.

Other Specimens Examined. PNG. MB: Rossel I, Brass 28469 (BO, K, L, LAE, PNH, S).

Distribution. Very localized distribution: found only in 1 area on a ridge on Rossel I.

Remarks. This is one of the most distinctive species of *Psychotria* in

Papuasias. The unbranched habit and reflexed inflorescence with upturned flowers make it unique.

Psychotria reticulatissima Moore, J. Bot. (London) 65: 269 (1927). Fig. 107.—

Type: *Brass* 1484 (A, holotype; BM, isotype), PNG: CENTRAL PROV: Owen Stanley Range, btwn Mt Brown and Mt Clarence, in montane forest btwn 900 and 1,050 m, from a "tall bush" with "orange-yellow" fruit, 19 May 1926.

Shrubs about 3 m high. Stipules valvate, persistent on nodes, coriaceous, glabrous or pubescent, ovate, to about 2 cm long, somewhat cleft at apex. Leaves with petioles glabrous or pubescent, 2–3.5 cm long; blades coriaceous, glabrous, very glossy, oblanceolate, 3.5×13.5 – 6×21 – 7.7×19 cm, lateral veins 17–18 per side, tertiary veins forming a network prominently visible with a $10\times$ hand lens, apex short-acuminate, base attenuate, drying a rich, deep, reddish brown, the cuticle very thick, waxy and glossy. Inflorescence contracted, not over 3 cm long, 1 main axis with opposite or verticillate branches at the 2–3 primary nodes, the branches branched themselves and terminating in numerous clusters of cymules, axes glabrous or pubescent. Flowers immature; the hypanthium and calyx 1–2 mm long. Fruit red when ripe, obovoid-globose, about 4 mm long. Pyrenes without ribs or ridges, endosperm probably ruminant.

Other Specimens Examined. IJ. Star Mts, *Reksodihardjo* 562 (K, L); Headwaters of Ok Denim Riv, *Henty et al.* NGF 33086 (LAE). PNG. Ce: Astrolabe Range, *Stevens* LAE 50354 (CANB, LAE).

Distribution. In montane forests between 800 and 1,400 m.

Distinguishing Features. Leaf blades drying rich, reddish brown, the surface glossy, prominent lateral veins and a conspicuous (with $10\times$ lens) network of tertiary veins; inflorescence small and compact, not more than 3 cm long.

Remarks. The dark, reddish-brown color of the dried leaves and the network of tertiary veins make the species distinctive. The color of the dry leaves is similar to that of *P. melanocarpa*, *P. heterophylla*, and *P. archboldii*.

Psychotria rosseliensis Sohmer, sp. nov. Fig. 108.—Type: *Sohmer* LAE 75057 (LAE, holotype; BISH, isotype), PNG: MILNE BAY PROV: Misima Dist: Rossel I: Mt Rossel, in ridge forest, at 700 m.

SOHMER: NEW GUINEA AREA PSYCHOTRIA

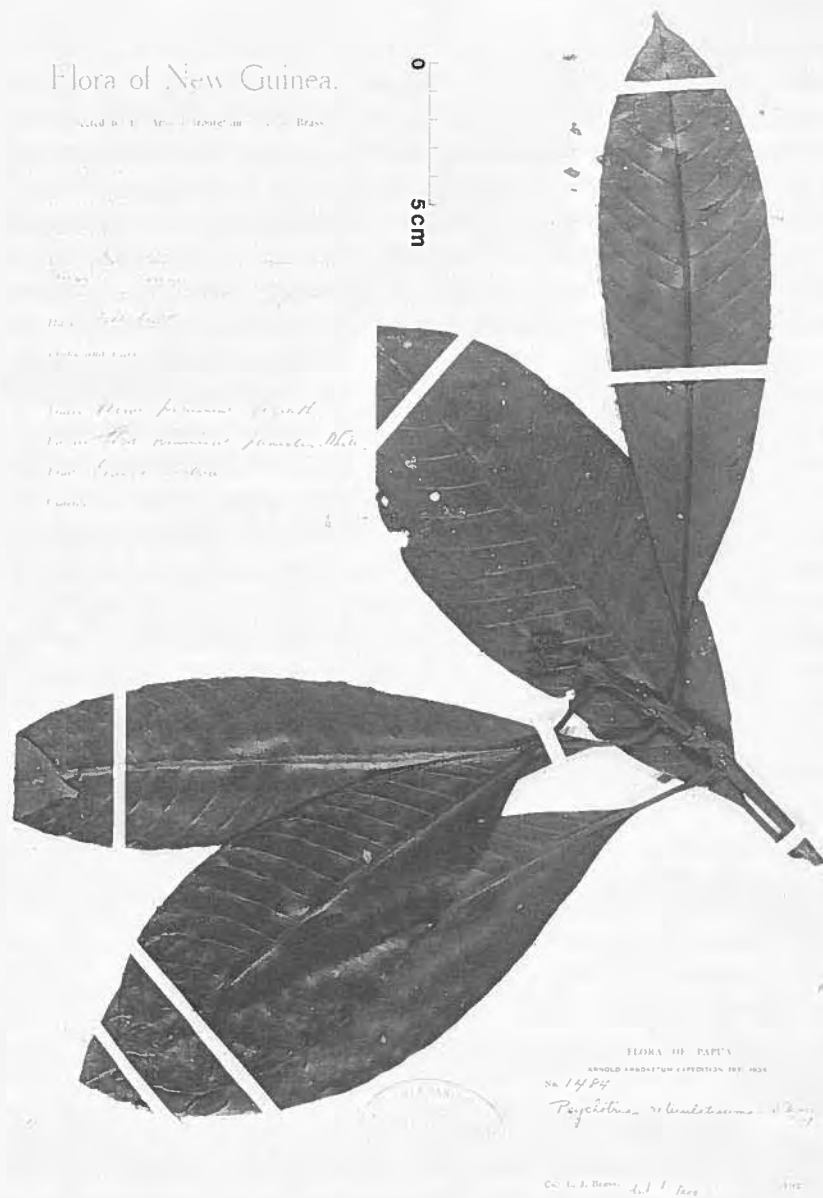


Fig. 107. *Psychotria reticulatissima*. Brass 1484 (A, holotype).

Arbores parvae vel frutices 1.5–6 m alti sunt, stipulis valvatis distinctis usque ad 1 cm longis obovato-oblongis apice rotundato vel obtuso, petiolis 1.5–5 cm longis, laminis semicoriaceis glabris oblanceolato-ellipticis varie obovato-ellipticis in sicco subbadie griseis eis majoribus 3×8.5 – 7×19.5 cm basi attenuato-acuminata apice subito acuminato nervis lateralibus 8–15 in dimidio quoque, inflorescentia sessili compacto regioni receptaculi condensato cum 9–18 floribus sessilibus a stipulis inclusis, floribus 4-meris dimorphicis sessilibus calyce et hypanthio 4 mm longis lobis 1 mm longis acuminatis, corollis albis carnosis tubo 4 mm longo ad apicem paulum dilatato extra glabro intra piloso, lobi fere 4 mm longis ovato-oblongis in flore reflexis, antheris 1.5 mm longis dorsifixatis, in floribus thrumaceis stigmatibus 0.8 mm longis, fructibus 11–13 mm longis nigris globosis, pyrenis in dorso convolutis, endospermo ruminato.

Small trees or shrubs 1.5–6 m high, twigs glabrous. Stipules valvate, not fused to each other, obovate-oblong, to about 1 cm long, apex round or obtuse. Leaves with petioles 1.5–5 cm long; blades semicoriaceous, glabrous, oblanceolate-elliptic to obovate-elliptic, the major ones 3×8.5 – 7×19.5 cm, lateral veins 8–15 per side, apex abruptly acuminate, base attenuate-acuminate, drying brownish gray. Inflorescence sessile, compact, with a condensed receptacular area with 9–18 sessile flowers, without associated bracts and bracteoles other than the stipules subtending the entire inflorescence. Flowers 4-merous, dimorphic, sessile; calyx and hypanthium together about 4 mm long, the lobes acuminate, about 1 mm long; corolla white, fleshy, tube glabrous without, pubescent within, slightly dilated towards summit, about 4 mm long, lobes ovate-oblong, about equal in length to tube, reflexed at anthesis; anthers about 1.5 mm long, dorsifixed; stigmas about 0.8 mm long in thrum flowers. Fruit black when ripe, globose, 11–13 mm long. Pyrenes convoluted on back, endosperm ruminant.

Other Specimens Examined. PNG. MB: Rossel I, *Brass* 28410 (L, LAE, S), *Henty* NGF 27086 (LAE), *Sohmer* LAE 75039 (BO, LAE), LAE 75045 (LAE), LAE 75046 (LAE), LAE 75048 (LAE), LAE 75049 (LAE), LAE 75050 (LAE), LAE 75058 (BO, LAE), LAE 75060 (BISH, LAE), LAE 75063 (LAE).

Distribution. Restricted to Rossel I above 600 m in lower montane rain forest.

Distinguishing Features. Inflorescence and flowers sessile; calyx-hypanthium 4 mm long, lobes narrow, acuminate; fruit jet black at maturity, large, 11–13 mm long.

Remarks. This is a most distinctive species, characterized by its sessile inflorescence and flowers and by the fruit, which is black at maturity.

SOHMER: NEW GUINEA AREA *PSYCHOTRIA*

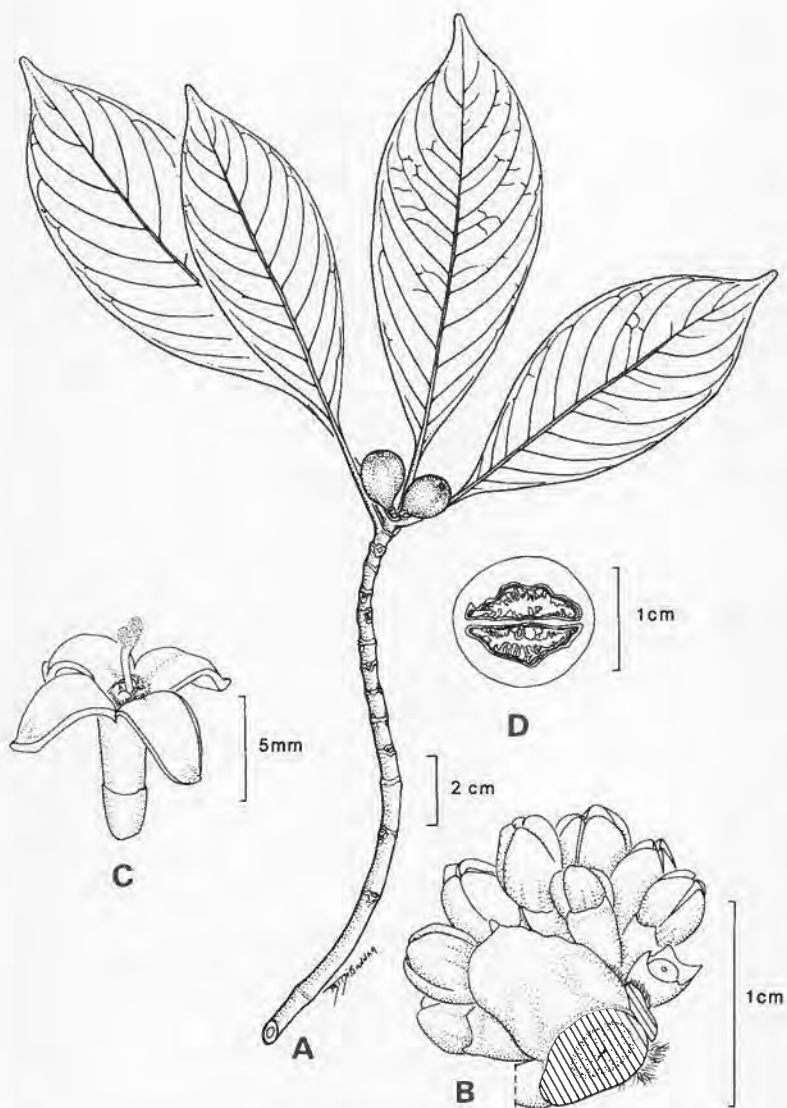


Fig. 108. *Psychotria rosseliensis*. A, *Sohmer LAE 75057* (LAE, holotype): habit of fruiting branch. B-C, *Sohmer LAE 75048* (LAE): B, inflorescence with most flowers in late bud stage and with stipule shown; C, pin flower at anthesis. D, *Sohmer LAE 75039* (LAE): fruit x.s.

Psychotria saidoriensis Sohmer, sp. nov. Fig. 109.—Type: *Stevens LAE 50160* (LAE, holotype; BO, L, isotypes), PNG: MADANG PROV: Saidor Dist: Matafuna Bay: Long I, in rain forest, at ca. 300 m.

Arbores parvae vel frutices fere 3 m alti sunt, stipulis incognitis, petiolis 1.8–2.6 cm longis, laminis 7×16 – 12×25 cm membranaceis glabris ovatis varie ovato-oblongis basi obtuso vel acuto apice acuto varie brevior acuminato in sicco subluteo-viridibus nervis lateralibus 7–12 in dimidio quoque, inflorescentia cum axi principali solitario crasso internodis compressis ramis subumbellatis compluribus 1.5–2.5 cm longis plerumque cum cyma floribus tribus pedicellatis, floribus incognitis, fructibus 10–12 mm longis obovoideo-ellipsoideis rubris, pyrenis in sectione triangularibus, endospermo ut videtur eruminato.

Small trees or shrubs about 3 m high. Stipules probably calyptrate. Leaves with petioles 1.8–2.6 cm long; blades membranaceous, glabrous, ovate to ovate-oblong, 7×16 – 12×25 cm, lateral veins 7–12 per side, apex acute to very short acuminate, base obtuse to acute, drying yellow-green. Inflorescence with 1 very short, stout main axis, internodes compressed, branches appearing umbellate, the branches several, each 1.5–2.5 cm long, usually with a single cyme of 3 pedicellate flowers. Flowers unknown. Fruit red at maturity, obovoid-ellipsoid, 10–12 mm long. Pyrenes triangular in cross section, endosperm apparently not ruminant.

Other Specimens Examined. PNG. M: Saidor I, *Vandenberg & Katik NGF 42320* (BO, LAE). WNB: Nantambu Forest Sta, *Croft et al. NGF 41417* (K, L, LAE, PNH).

Distribution. Lowland rain forests from sea level to 400 m, on Saidor Island and in West New Britain Province.

Distinguishing Features. Leaf blades membranaceous, ovate; inflorescence with primary nodes compressed, umbelloid; fruit red, 10–12 mm long; endosperm not ruminant.

Remarks. This species is most likely related to *P. trichostoma*, *P. monopedicellata*, and *P. novohiberniensis* (with which it shares an umbelloid inflorescence). It differs from the first by the small number of flowers per inflorescence, and from the latter 2 by the inflorescence branches being branched and not appearing as pedicels.

Psychotria sarmiensis Sohmer, sp. nov. Fig. 110.—Type: *Karstel BW 5319* (LAE, holotype; CANB, L, PNH, SING, isotypes), IRIAN JAYA: [former] Hollandia Dist: Mt Moasets SW of Sarmi, in primary forest on clay soil, at 560 m.



Fig. 109. *Psychotria saidoriensis*. Stevens LAE 50160 (LAE, holotype): A, habit of fruiting branch; B, fruit x.s.

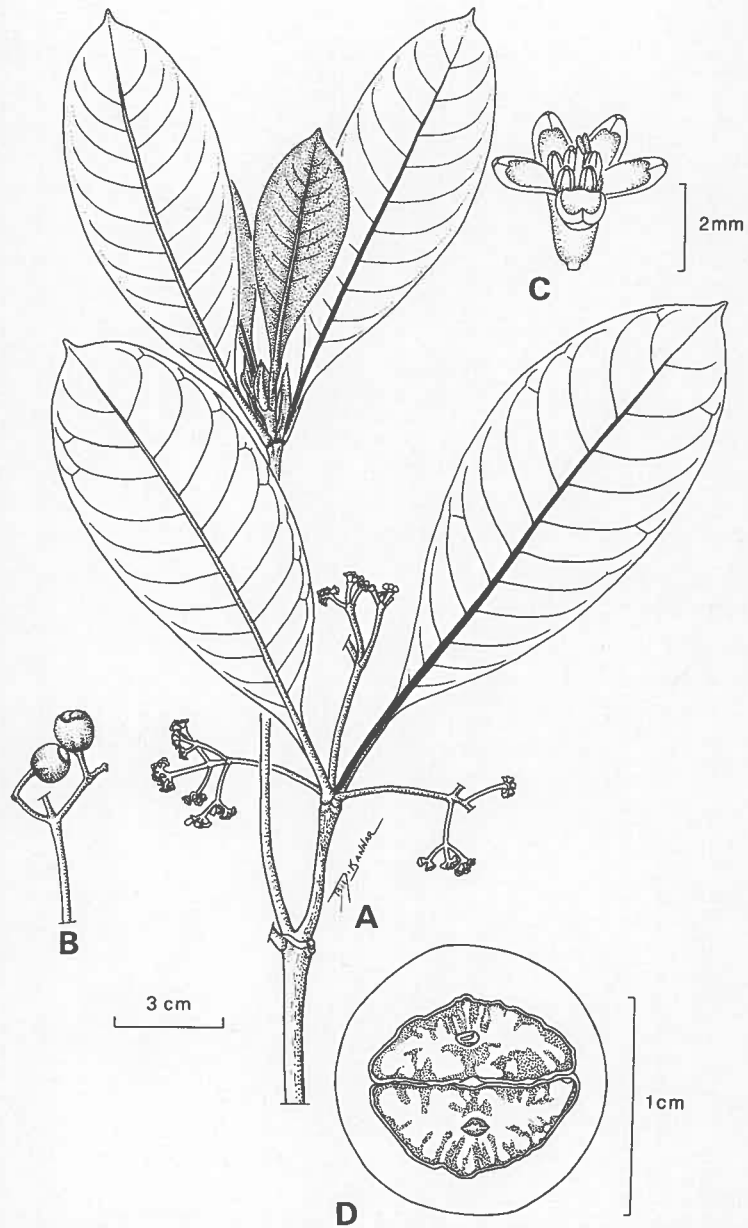


Fig. 110. *Psychotria sarapiensis*. Karstel BW 5319 (LAE, holotype): A, habit; B, portion of inflorescence with fruit; C, pin flower at anthesis; D, fruit x.s.

SOHMER: NEW GUINEA AREA *PSYCHOTRIA*

Arbores usque ad 19 m(?) altae sunt, stipulis valvatis usque ad 1.5 cm longis ovato-lanceolatis coriaceis glabris apice acuto midnervo prominenti petiolis 1–2.5 cm longis, laminis 1.5 × 7.2–5.5 × 14.5 cm coriaceis glabris obovatis basi attenuata apice acuto nervis lateralibus 8–11 in dimidio quoque, inflorescentia subtrichotoma axi principali et alteres binis minoribus omnibus duplo trichotome ramosis et in apice cum cymulis sessilibus compluribus congregatis floribus 4- vel 5-meris dimorphicis(?) sessilibus hypanthio et calyce 1.8–2 mm longis glabris, corollis albis gracilibus tubo 1 mm(?) alto intra piloso lobis 1.2–1.8 mm longis ovati in flore reflexis, anteris 0.5 mm longis basifixis (pistilo immaturo), fructibus rubro 1 cm diametro lateribus crassioribus, pyrenis in dorso cum convolutiariis irregularibus laevibus, endospermo prominente ruminato.

Trees to 19 m(?) tall. Stipules valvate, coriaceous, glabrous, ovate-lanceolate, to about 1.5 cm long, midrib very prominent, apex acute. Leaves with petioles 1–2.5 cm long; blades coriaceous, glabrous, obovate, 1.5 × 7.2–5.5 × 14.5 (–8.5 × 23.5) cm, lateral veins 8–11 per side, apex acute, base attenuate, drying a conspicuous brownish yellow or brownish orange. Inflorescence appearing trichotomous, apparently with 1 main axis and 2 smaller but similar ones from its base, each axis branched trichotomously 2×, terminating in clusters of sessile cymules. Flowers 4- or 5-merous, dimorphic(?), sessile; hypanthium and calyx glabrous, together 1.8–2 mm; corolla white, thin in texture, the tube about 1 mm(?) long, hairy within, the lobes ovate, 1.2–1.8 mm long, reflexed at anthesis; anthers about 0.5 mm long, basifixed; pistil immature in specimen examined. Fruit red when ripe, with a very thick wall, globose, about 10 mm in diameter. Pyrenes with irregular but smooth convolutions on back, endosperm prominently ruminated.

Other Specimens Examined. IJ. Nr Sarmi, *Iwanggin* BW 5890 (CANB, LAE); nr Djayapura, *Kostermans & Soegeng* 448 (K, L).

Distinguishing Features. Leaf blades coriaceous, obovate; inflorescence trichotomous; flowers small, the corolla tube only about 1 mm long; fruit wall very thick; endosperm prominently ruminated.

Remarks. This species is probably related to *P. foremanii* and *P. tripedunculata*, sp. nov. The reported height of 1 individual was 19 m. It is very unlikely that this species, or any other in Papuaasia, actually attains such a height.

Psychotria schmielei Warburg, Bot. Jahrb. 13: 440 (1891). Fig. 111.—Type: *Warburg* 21453 (A, lectotype, here designated), PNG: BISMARCK ARCH: Ulu I.

BULLETIN 1: BOTANY

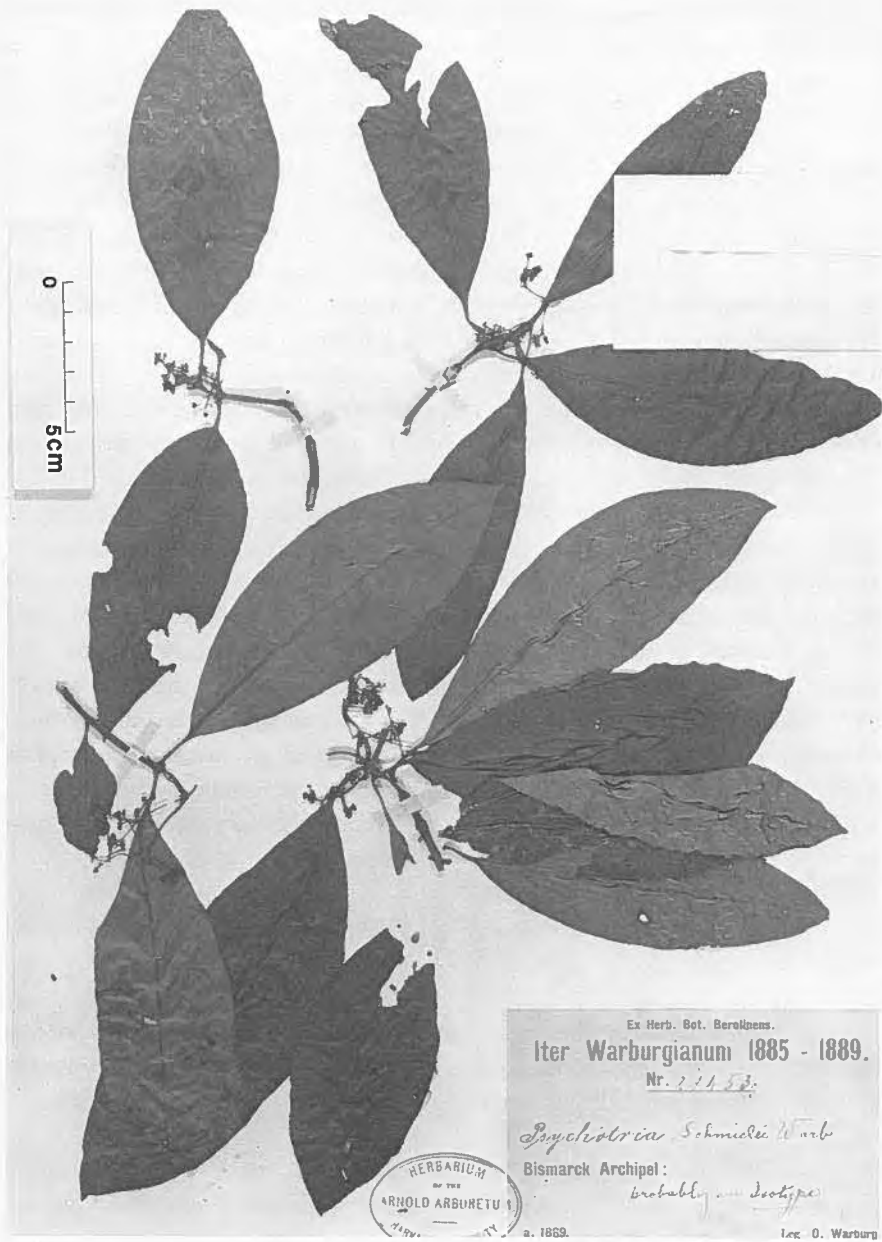


Fig. 111. *Psychotria schmielei*. Warburg 21453 (A, lectotype).

SOHMER: NEW GUINEA AREA *PSYCHOTRIA*

Trees, usually 5–12 m tall, reported as 1 m tall shrubs as well. Stipules calyptrate, to 1.2 cm long, the leaf and flower buds emerging from a lateral, longitudinal slit. Leaves with petioles 1–2.5 cm long; blades thin, membranaceous to chartaceous, elliptic-oblong to lanceolate-oblong, $4 \times 13\text{--}6.5 \times 18.5$ cm, lateral veins 7–10 per side, apex and base obtuse to acute, usually drying yellow-green. Inflorescence extremely delicate, generally with 1 main axis, 2–4 primary nodes with verticillate branching at each, the branches threadlike, very thin and delicate, less than 0.5 mm wide, often with numerous flowers terminating the branches. Flowers 4-merous, dimorphic, pedicellate; calyx and hypanthium together less than 0.5 mm, minute; corolla white, very thin in texture, not fleshy, glabrous within, tube somewhat dilated towards apex, 3–3.5 mm long, lobes ovate-obtuse, 1–1.5 mm long, reflexed at anthesis; anthers 1 mm long or less. Fruit available immature.

Warburg (op. cit.), unfortunately, did not indicate a type specimen when he published his new species. In fact, though referring to the specimen he had in hand, he cited neither collector nor number: "Dieser Strauch wurde auf der Insel Ulu in Bismarckarchipel am Rande des Primären Waldes gefunden." It is a matter of conjecture, therefore, as to whether he saw the specimen here designated as lectotype. I am assuming he did. The date on the label (1889) and the fact that it is from the Bismarck Archipelago make it a little more probable that he did. As Merrill & Perry (1946) point out, however, Valeton (1927) did cite a Warburg specimen (#21454) in his discussion of the species, which Valeton considered the same as *P. leptothyrsa*.

Other Specimens Examined. SI: Treasury Group, Mono I, Whitmore BSIP 4199 (LAE); SE Mono I, Palusua, Mauriasi et al. BSIP 14164 (LAE); New Georgia Group: Kolombangara I, Gafui et al. BSIP 8852 (LAE), BSIP 8749 (LAE), BSIP 7549 (LAE); Jaghi I, Santa Ysabel, Corner 2818 (LAE); Malaita I, Runikera & collectors BSIP 10717 (LAE); Wagina I, Whitmore's collectors BSIP 5547 (LAE).

Distribution. Lowland rain forests in well-drained sites from sea level to ca. 120 m.

Distinguishing Features. Calyptrate stipules; leaf blades membranaceous; inflorescence branches extremely delicate.

Remarks. The specimen here designated as lectotype is the only one from Papua New Guinea. All of the rest are from the Solomon Islands, and it could very well be that the species is restricted to the Solomon Islands. The nature of the stipules relates *P. schmielei* to *P. damasiana*, *P. galorei*, and *P. pavairiensis*.

Warburg (1891) recognized the nature of the stipules of the species and discussed them. Valetton apparently overlooked this important character and lumped Warburg's species with *P. leptothyrsa*, a species with valvate stipules.

Psychotria sentanensis Valetton, in Lorentz, Nova Guinea 8: 494 (1911). Fig. 112.—

Type: *Atasrip* 193 (L, lectotype; BO, isolectotype), IRIAN JAYA: "Humboldt-Bai beim Sentani-See."

Small tree or shrub. Stipules valvate, to 2 cm long, pubescent without, apex apparently cleft. Leaves with petioles 0.8–2 cm long; blades coriaceous to semicoriaceous, ovate-obovate to lanceolate-obovate, 4.5 × 11–9 × 17 cm, pubescent below, lateral veins 9–14 per side, apex rounded, but with a blunt, mucronate tip, base acuminate, drying reddish brown. Inflorescence to 7 cm long, 1 main axis approximately ½ the total length, 1 or 2 primary nodes with verticillate branching at each, the branches themselves with verticillate or opposite branching, terminated by compound cymes. Flowers 4- to 5-merous on short pedicels; calyx and hypanthium 1–1.5 mm long; corolla tube 2–3 mm long at anthesis, lobes of equal size, probably reflexed; anthers about 1 mm long. Fruit white at maturity, turbinate-globose, 8–9 mm long, 6 mm wide. Pyrenes irregularly ribbed and ridged on back, endosperm ruminant.

Other Specimens Examined. IJ. Janim Besar nr Lake Sentani, *Kalkman* BW 6201 (BO, CANB, L, LAE); Djayapura Dist, Polimac, *Sijde* BW 4169 (CANB, K, L, LAE). PNG. Torricelli Mts, *Schlechter* 14483 (BO, K).

Distribution. Lower elevation forests of Irian Jaya and the Torricelli Mts of Papua New Guinea.

Distinguishing Features. Broadly obovate leaves with conspicuous lateral veins and with a blunt mucronate apex; inflorescence with a well-defined peduncle and few branches; fruit white, 8–9 mm long.

Remarks. The specimens of this taxon examined seem distinct, but I suspect a close relationship exists with the *P. hollandiae* complex.

Psychotria solomonensis Merrill & Perry, J. Arnold Arbor. 27: 212 (1946).—

Type: *Kajewski* 2367 (not seen), SI: Malaita: Quoimonapu, rain forest at sea level, Dec 1980.

SOHMER: NEW GUINEA AREA PSYCHOTRIA

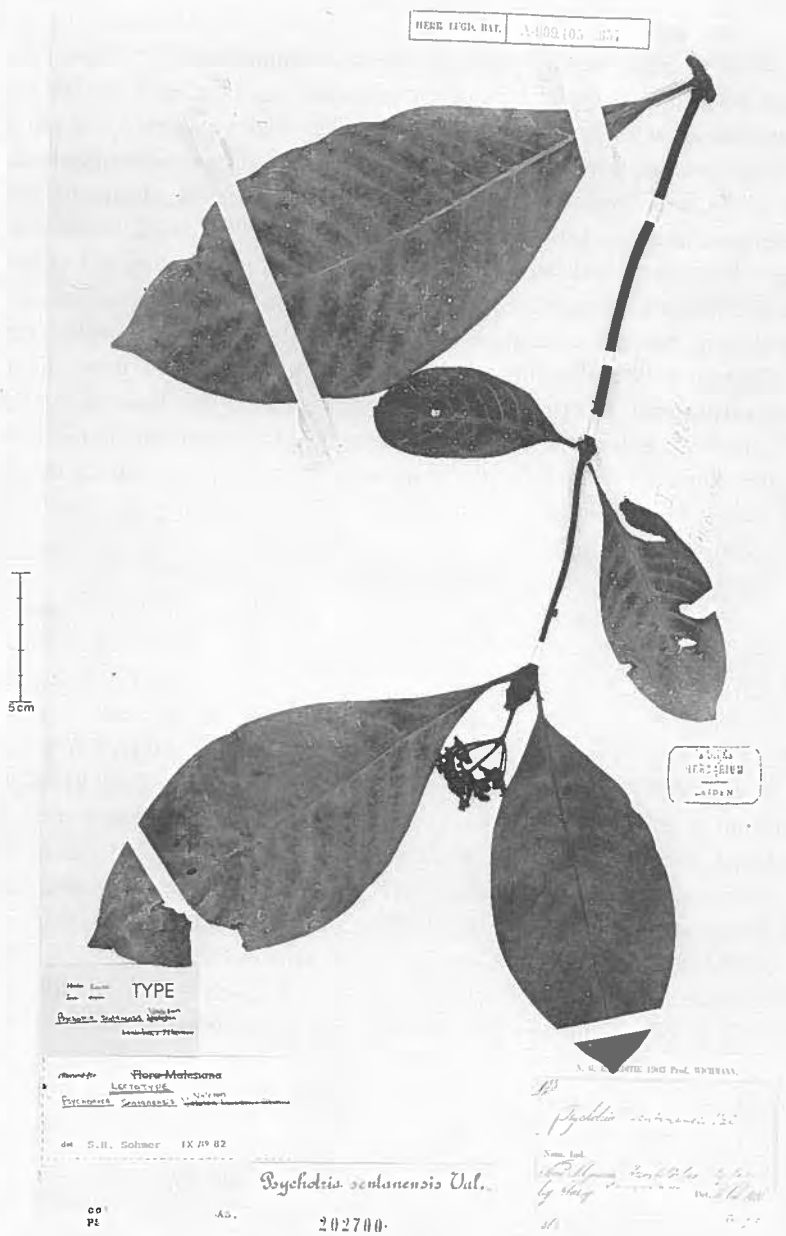


Fig. 112. *Psychotria sentanensis*. Atasrip 193 (L, lectotype).

The following description is based on Bougainville material only.

Tree 5-12 m high. Stipules valvate, fused to each other for $\frac{1}{2}$ their length forming a tube or cylinder at base, glabrous, ovate-oblong, to 1 cm long, apex round or obtuse, at most acute, not cleft. Leaves with petioles 1.5-4 cm long; blades chartaceous to semicoriaceous, ovate-elliptic to oblanceolate-elliptic, $2.8 \times 6-7.2 \times 17$ cm, lateral veins 7-10 per side, apex generally short, abrupt acuminate, base acuminate to acute. Inflorescence trichotomous at base with 1 main axis and 2 smaller lateral ones, each with 1 or 2 primary nodes terminating in 1 to several cymules of 3 flowers. Flowers 5-merous, dimorphic, sessile; calyx and hypanthium 1.5-2 mm long, summit truncate or with lobes minute, acute; corolla white to orange-white or yellowish white, thin in texture, not fleshy, the tube not much dilated towards summit, about 2.5 mm long, hairy within, lobes lanceolate-oblong, about 2 mm long, reflexed at anthesis; anthers about 0.5 mm long in pin flowers. Fruit red at maturity, obovoid-globose or turbinate-globose, about 10 mm long. Pyrenes with a short taillike appendage, 3-5 irregular small ridges on back (in cross section), endosperm prominently ruminant.

Other Specimens Examined. PNG. NS: Bougainville I: Kupei, *Cole* 116 (LAE); Lake Loloru Crater, *Craven & Schodde* 155 (CANB, LAE), 194 (CANB, LAE), 304 (CANB, LAE), *Schodde & Craven* 3862 (BISH, CANB); Barito Vill, *Schodde & Craven* 3975 (CANB, LAE); Kapikavi, *Lavarack & Ridsdale* NGF 31350 (LAE); Tonolei Harbor, *Foreman* NGF 45666 (BISH, CANB, LAE, SING), *Sayers* NGF 19728 (BO, LAE, PNH, SING), *Whitmore* BSIP 4161 (LAE); SI: Shortland I, *Mauriasi & collectors* BSIP 13245 (LAE), *Runikera et al.* BSIP 13036 (LAE), BSIP 13092 (LAE), BSIP 13094 (LAE), BSIP 13135 (LAE), *Whitmore's collectors* BSIP 5752 (LAE), BSIP 5931, *Whitmore* BSIP 5885 (LAE); Ovau I, *Mauriasi et al.* BSIP 13387 (LAE); Choiseul I, *Gafui et al.* BSIP 17508 (LAE), BSIP 18585 (LAE); New Georgia I, *Burn-Murdoch et al.* BSIP 6925 (LAE), *Burn-Murdoch's collector* BSIP 6993 (LAE), *Cowmeadow's collector* BSIP 3183 (LAE), 3763 (LAE), *Whitmore s.n.* (LAE); Gizo I, *Mauriasi et al.* BSIP 15810 (LAE); Vangunu I, *Whitmore* BSIP 992A (LAE); Santa Ysabel I, *Whitmore* BSIP 2767 (LAE), *Hunt* RSS 2632 (A, LAE); Guadalcanal I, *Boraule et al.* BSIP 9331, *Fa'arodo et al.* BSIP 11243 (LAE), BSIP 12019 (LAE), *Gafui et al.* BSIP 9112 (LAE), *Mauriasi et al.* BSIP 11839 (LAE), *Runikera et al.* BSIP 9749 (LAE), *Sirute'e et al.* BSIP 10090 (LAE), *Whitmore* BSIP 2787 (LAE); Nggela I, *Gafui et al.* BSIP 15152 (LAE), BSIP 16793 (LAE), *Mauriasi et al.* BSIP 18,212 (LAE); Malaita: *Gafui et al.* BSIP 10274 (LAE), BSIP 10425 (LAE), *Mauriasi et al.* BSIP 13564 (LAE); San Cristobal I, *Corner* 15 (LAE), *Gafui et al.* BSIP 12530 (LAE), BSIP 12641 (LAE), *Runikera et al.* BSIP 10942 (LAE); Santa Ana I, *Mauriasi et al.* BSIP 17881 (LAE).

Distribution. On Bougainville found in low montane forests from 700 to 800 m. Distributed widely and commonly throughout the Solomon Islands from sea level to ca. 600 m.

Distinguishing Features. Stipules valvate but fused at base to form a short tube or cylinder; leaf blades usually stiff, oblanceolate-elliptic, sharply defined; inflorescence trichotomous from base; fruit turbinate-obovoid; pyrenes with short taillike appendage.

Remarks. The affinities of this species are not well understood at present for the stipules will not bear comparison to those of species in the Solomon Is possessing calyptrate stipules, some of which *P. solomonensis* morphologically resembles. *Psychotria solomonensis* is probably related to *P. sarmiensis* and *P. tripedunculata*, sp. nov., and possibly to *P. foremanii*.

Psychotria sphaerothyrsa Valetou, Bot. Jahrb. 61: 99 (1927). Fig. 113.—Type: Schlechter 17174 (A, lectotype, here designated; BM, C, K, L, LAE, isolecotypes), PNG: WEST SEPIK PROV: Kani Mts, at 1,000 m, 9 Jan 1908.

Small tree to 3.5 m tall, glabrous throughout, allegedly myrmecophilous. Stipules of principal nodes valvate, thick in texture, ovate, about 1 cm long, apex round or acute, not cleft. Leaves with petioles 1.5–5 cm long; blades membranaceous, chartaceous, or coriaceous, broadly elliptic to broadly elliptic-ovate, 7.5 × 15–15 × 22 cm (occasionally with smaller leaves), primary lateral veins 22–28 per side with a prominent submarginal costa or collector vein and often, in addition, a second, less prominent submarginal costa exterior to the first. Inflorescence 15–20 cm long, often broader than long, either with a single, unbranched main axis nearly ½ total length with 2–3 primary nodes with opposite or verticillate branching at each, or with a main axis as above and 2 smaller but similar axes from the base (trichotomous inflorescence), each branch itself branched 2–3 × more. Flowers 4- or 5-merous appearing sessile on the cymule branch, but actually on short, stout pedicels hardly distinguishable from the hypanthium, together 1–1.5 mm long; free portion of calyx very little expanded, lobes less than 0.5 mm long, acute; corolla thin in texture, tube glabrous without, within somewhat villous at attachment of filaments, about 5 mm long (in thrum flower); anthers about 0.8 mm long, exserted 2–3 mm beyond throat of corolla tube (in thrum flower); pistil with style about 5 mm long, stigmas somewhat divergent (but barely papillose), held at about the level of the throat of corolla tube (in thrum flowers). Fruit red(?) at maturity, obovoid globose, 3–4 mm long. Pyrenes without pronounced ridges on back, endosperm ruminant.

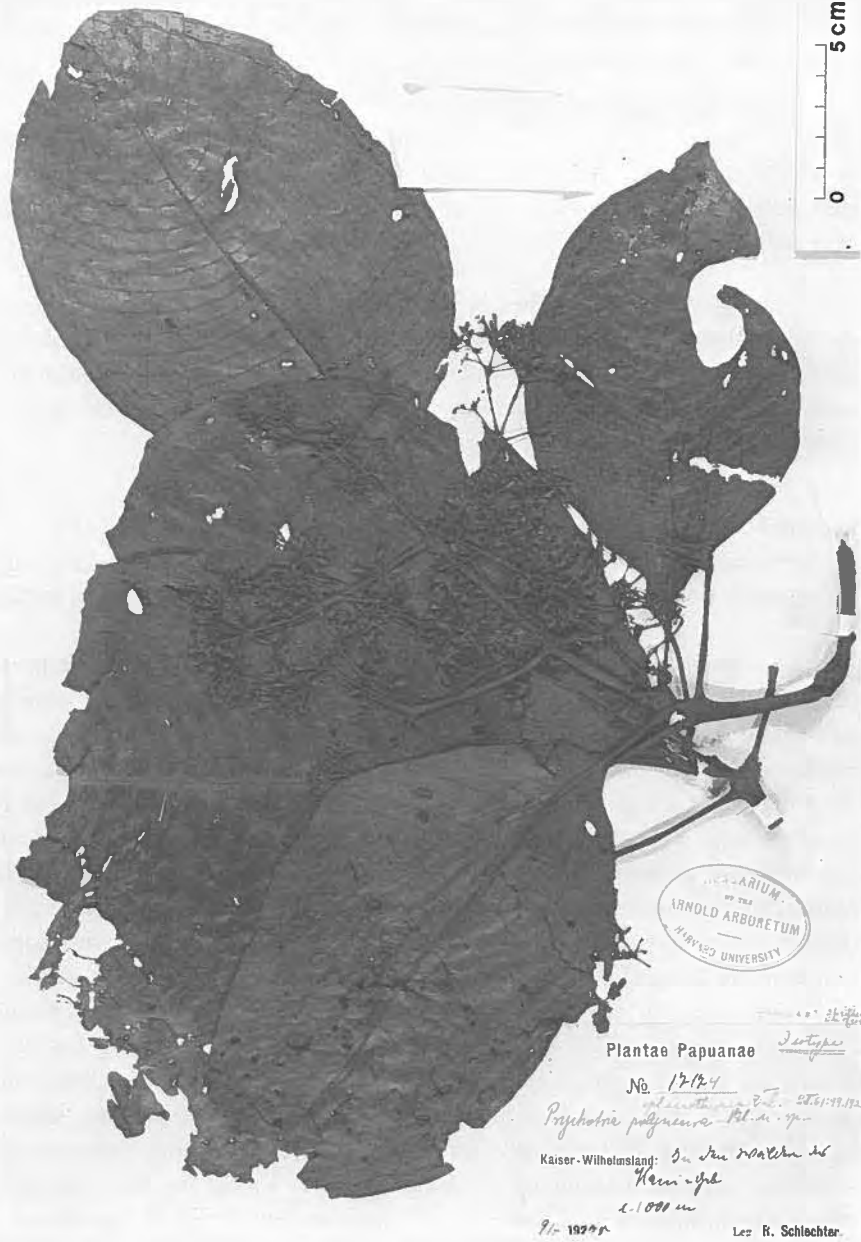


Fig. 113. *Psychotria sphaerothyrsa*. Schlechter 17174 (A, lectotype).

As there was no indication in the original description of a single specimen upon which the author based his taxon, I have designated the sheet at A, which appears to be a very good specimen, as lectotype.

Other Specimens Examined. PNG. WS: Wantipi Vill, *Darbyshire & Hoogland* 8380 (CANB, L, LAE, PNH).

Distribution. Reported from wet forests from ca. 400 to 1,000 m in West Sepik Province. Merrill & Perry (1946) report a Brass collection (635) from the Sogeri District of Central Province.

Distinguishing Features. Leaf blades broadly membranaceous, chartaceous or coriaceous, elliptic, lateral veins 22–28 per side, the veins joining to form a conspicuous marginal costa with a less conspicuous submarginal costa; corolla tube thin in texture, glabrous within, 4–6 mm long.

Remarks. This species is probably not closely related to *P. apiculata* and *P. versteegii* Deb & Gang. as some previous authors have implied; the inflorescence is not usually trichotomous from the base as it is in the latter 2.

Psychotria stevensiana Sohmer, sp. nov. Fig. 114.—Type: *Streimann* NGF 44358 (LAE, holotype; L, isotype), PNG: EAST NEW BRITAIN PROV: Kokopo Dist: Keravat: Vunapaladir, on a small ridge in lowland rain forest, at ca. 60 m.

Frutices vel arbores graciles fere 3 m alti sunt, stipulis usque a 2 cm longis ad basim connatis pubescentibus cum 4 appendicibus apicalibus acuminatis ultra 1 cm longis, petiolis 2–5.5 cm longis, laminis 6.5×14 – 11.5×24 cm chartaceis late ellipticis varie obovato-ellipticis basi acuta obtusave apice subito longe acuminato infra glabris vel pubescentibus in sicco subgriseo-badiis nervis lateralibus 14–16 in dimidio quoque, inflorescentia subumbellata ramis 4–8 inaequalibus ex axi primarii brevissimo ramis 0.5–5.5 mm longis unifloriferis, floribus incognitis sed licet calyce fere 1 cm longo lobis aristatis 6–8 mm longis, fructibus 12 mm longis ovoideo-globosus cum calyce persistenti conspicuus libratis rubris, pyrenis in pyrenulis tribus septum inter eas in liro extenso.

Shrubs or slender trees about 3 m high. Stipules calyptrate, fused below with 4 acuminate-aristate apical appendages, to 2 cm long, the appendages more than $\frac{1}{2}$ this length, pubescent. Leaves with petioles 2–5.5 cm long; blades chartaceous, glabrous or pubescent below, broadly elliptic to obovate-elliptic, 6.5×14 – $11.5 \times$



Fig. 114. *Psychotria stevensiana*. Streimann NGF 44358 (LAE, holotype): habit of fruiting branch.

24 cm, lateral veins 14–16 per side, apex abruptly narrow, long-acuminate, base acute to obtuse, drying grayish brown. Inflorescence somewhat umbelloid, 4–8 unequal branches arising from a short, stublike primary axis, the branches terminated by a single flower and 0.5–5.5 cm long. Flowers unknown; calyx apparently nearly 1 cm long, lobes 6–8 mm long, aristate, acuminate. Fruit red when ripe, ovoid-globose, about 12 mm long, not including the persistent, conspicuous calyx, ridged. Pyrenes each with 2 sharp, high ridges on back giving the impression that the pyrenes are each divided into 3 subunits.

Other Specimens Examined. PNG. WNB: Kapiura Riv, *Henty* NGF 29399 (L, LAE); Mt Ulawun, *Stevens & LeLean* LAE 58556 (BISH, L, LAE, PNH); Keravat Riv logging area, *Floyd* 6623 (BO, K, L). ENB: Keravat, *Hoogland* 3435 (K, SING).

Distribution. Lowland rain forests of New Britain to ca. 70 m.

Distinguishing Features. Stipules fused, apex with 4 appendages, aristate, acuminate, often $\frac{1}{2}$ the length of the entire stipule; fruit ridged, capped by long calyx tube; pyrenes with 2 prominent, sharp, high ridges on back.

Remarks. A species unique, if indeed a species of *Psychotria*, by the nature of the stipules and pyrenes. The species is named after Peter F. Stevens, who has contributed much to our knowledge of Papuan plants.

Psychotria streimannii Sohmer, sp. nov. Fig. 115.—Type: *Streimann & Martin* LAE 52933 (LAE, holotype; L, isotype), PNG: WEST SEPIK PROV: Vanimoa Dist: Vanimoa hinterland, at 500 m.

Arbores parvae fere 3 m altae sunt, stipulis valvatis 1.5 mm longis 1.8 mm latis late obovatis subtilibus in apice irregulariter fissis lobis rotundatis vel obtusis glabris sed marginibus ciliatis, petiolis 2.5–3.5 cm longis, laminis 5.5 × 16.5–10 × 23 cm laevibus glabris crasse coriaceis basi attenuata decurrenti apice acriter breve acuminato nervis lateralibus 12–17 in dimidio quoque, inflorescentia 4–5 cm longa subalba subcondensata, pedunculo brevi usque ad 2.5 cm longo vel ex basi cum 2 ramis glabris vel puberulentis ramulis verticillatis, floribus 5-meris dimorphicis subsessilibus, calyce et hypanthio vix 2 mm longis puberulentis lobis breve obtuse rotundatis, corollis albis tubo 4.5–5.5 mm longo tubuloso extra glabro intra in fauce piloso lobis 3 mm longis carnosus anguste ovatis varie subulatis in flore reflexis, antheris in floribus thrumaceis fere 2 mm longis, fructibus 1 cm



Fig. 115. *Psychotria streimannii*. Streimann & Martin LAE 52933 (LAE, holotype): A, habit; B, inflorescence in young fruit; C, thrum flower at anthesis.

longis obovoideo-turbinatis licet albis, pyrenis in dorso cum 3 liris irregularibus, endospermo licet ruminato.

Small trees about 3 m tall. Stipules valvate, somewhat thin, glabrous, broad, obovate, to 1.5 mm long and 1.8 mm wide, apex irregularly cleft, lobes round or obtuse, margins ciliate. Leaves with stout petioles 2.5–3.5 cm long; blades thick-coriaceous, glabrous, smooth, 5.5 × 16.5–10 × 23 cm, lateral veins 12–17 per side, apex sharp, short acuminate, base attenuate with blades decurrent onto petiole. Inflorescence whitish in color at anthesis (always?), somewhat condensed, 4–5 cm long, 1 stout, short peduncle (unbranched main axis) to 2.5 cm long, or 2 lateral branches from base of main axis, the nodes usually 2 on each axis with verticillate branching at each, glabrous or puberulent. Flowers 5-merous, dimorphic, nearly sessile; calyx and hypanthium less than 2 mm long, puberulent, lobes obtuse-round, short; corolla white, tube glabrous without, hairy within at throat, uniform in width throughout, 4.5–5.5 mm long, lobes fleshy, narrowly ovate to subulate, lobes about 3 mm long, reflexed at anthesis; anthers nearly 2 mm long in thrum flowers. Fruit probably white at maturity, obovoid-turbinate, about 1 cm long. Pyrenes with 3 irregular but clearly defined ridges on back, endosperm probably ruminant.

Other Specimens Examined. PNG. Mo: Markham Swamp, Streimann 8500 (UPNG).

Distribution. Probably with a much wider distribution than the number of cited collections implies. Found at relatively low elevations along the NE coast of New Guinea.

Distinguishing Features. Leaf blades prominently coriaceous, obovate; inflorescence small, somewhat condensed; corolla thick and fleshy; fruit probably white at maturity, turbinate, ridges on back of pyrenes.

Remarks. This species demonstrates affinities to *P. aurea*. The larger, obovate leaves and corolla tube only $\frac{1}{2}$ as long, however, differentiate it from the latter. The technical characteristics of cleft stipules and an inflorescence less than 5 cm long separate *P. streimanii* from *P. vanimoensis*, sp. nov., which it resembles and with which it shares, apparently, the same habitat. As more material of these taxa becomes available, this relationship may become clearer.

Psychotria talasensis Sohmer, sp. nov. Fig. 116.—Type: Sohmer et al. LAE 75389 (LAE, holotype; BO, LAE, isotypes), PNG: WEST NEW BRITAIN PROV:

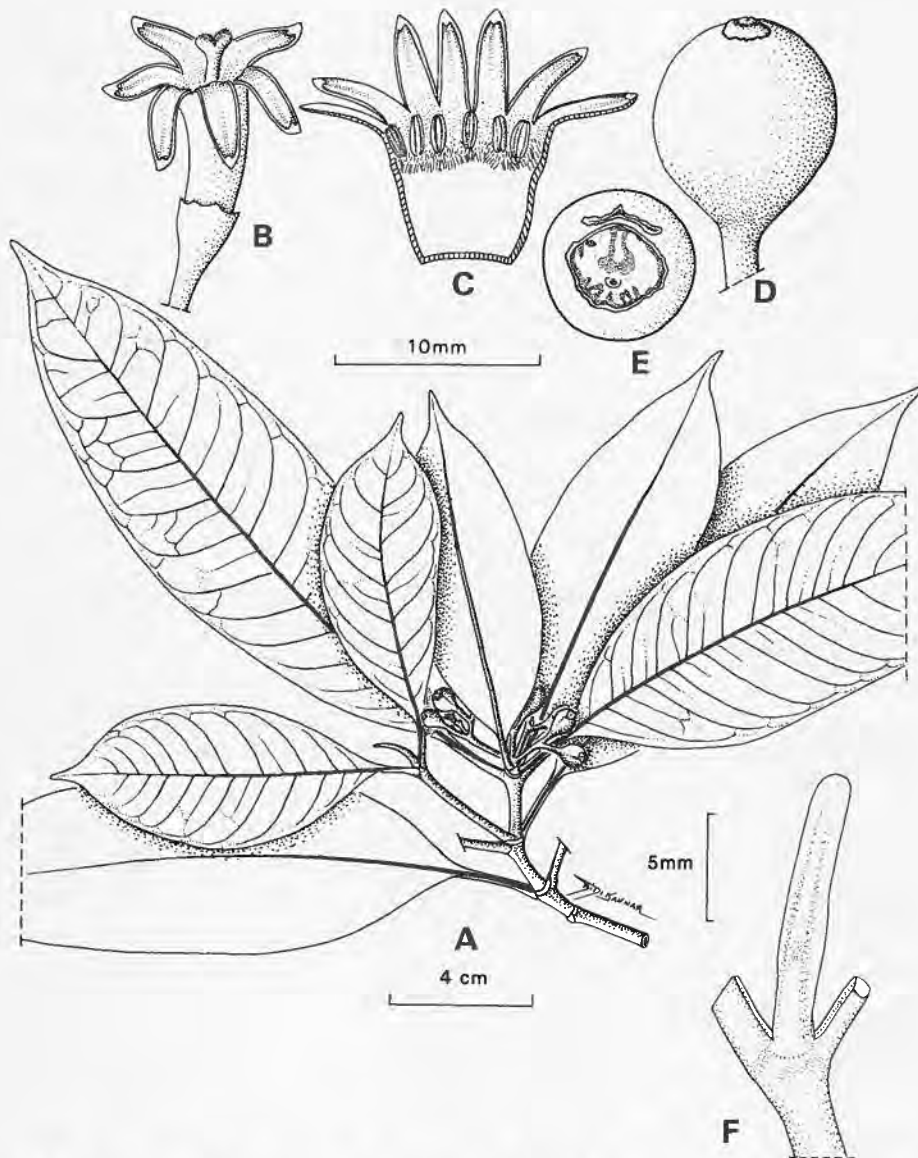


Fig. 116. *Psychotria talasensis*. A, *Sohmer et al.* LAE 75389 (LAE, holotype): habit of fruiting branch. B-F, *Croft & Katik* NGF 41476 (LAE): B, pin flower at anthesis; C, corolla of pin flower split and opened; D, fruit; E, fruit x.s. showing 1 aborted pyrene; F, stipule.

Talasea Dist: Garu Wildlife Management Area: track from coast road to the base of Mt Gabuna, in lowland rain forest, at ca. 70 m.

Arbores 3–6 m altae sunt, stipulis calyptratis connatis angustis usque ad 3 cm longis, novellis ex fissura laterali protrusis in vivo viridibus vel valde rubrinctis praesertim in base, petiolis 1–3 cm longis, laminis $2.2 \times 7.5\text{--}4.5 \times 17$ (-11.5×20) cm chartaceis vel coriaceis lanceolato-ellipticis varie avatis basi acuta varie obtusa apice acuto vel acuminato nervis lateralibus 8–14 in dimidio quoque, inflorescentia vulgo cum axi principali usque ad 5.5 cm longo et in basi verticillata, ramis cum ramulis omnibus in apice cum 1–3 cymulis 3 floriferis, floribus 5-, 6-, vel 7-meris, pedicellis brevibus, hypanthio et calyce 2–4 mm longis ad apicem truncatum sensim distentis, corollis albis coriaceis tubo 5–7 mm long intra in fauce piloso, lobis 3–4 mm longis anguste lanceolato-oblongis in flore reflexis, in floribus pinaceis antheris 1.5–2 mm longis, stylo 8–9 mm longo, fructibus 6–10 mm longis primo luteis ad aurantiacis ad rubis, pyrenis laevibus, endospermo ruminato.

Trees 3–6 m high. Stipules calyptrate, fused, in vivo green and tinged strongly with red, particularly at base, narrow, to 3 cm long, the young leaves or inflorescence emerging via a lateral longitudinal slit. Leaves with petioles 1–3 cm long; blades chartaceous to coriaceous, lanceolate-elliptic to ovate, $2.2 \times 7.5\text{--}4.5 \times 17$ (-11.5×20) cm, lateral veins 8–14 per side, apex obtuse, acute to acuminate, base acute to obtuse to nearly round. Inflorescence usually with 1 main axis to 5.5 cm long, verticillate branching at base, the branches branched again, the ultimate ones with 1–3 cymules of 3 flowers each. Flowers 5-, 6-, or 7-merous, on short pedicels 2–4 mm long; hypanthium and calyx together 2–4 mm, evenly expanded to the truncate summit; corolla white, leathery or thin in texture, the tube 5–7 mm long, hairy at throat within, the lobes narrow, lanceolate-oblong, 3–4 mm long, reflexed at anthesis; anthers 1.5–2 mm long in pin flowers; pistil with style 8–9 mm. Fruit red when ripe but passing through definite yellow and orange stages, obovoid-globose, 6–10 mm long. Pyrenes without ribs or ridges on back, endosperm ruminant.

Other Specimens Examined. PNG. M: nr Bugei, *Robbins* 1574 (CANB). Mo: Markham Bridge, *Fallen et al.* 286 (L), *Floyd* NGF 5525 (BO, K, L, LAE, SING), *Garrett-Jones* ANU 21156 (CANB, LAE), *Millar* NGF 38435 (L, LAE), *van Royen & Floyd* 5772 (BO, LAE), *van Royen* NGF 16057 (BO, LAE), *Womersley* NGF 19438 (BO, K, L, LAE, SING); nr Markham Point, *Hartley* 9852 (CANB, L); Markham Riv Point, *Hartley* TGH 10956 (A, CANB, K, L, LAE), *Kerenga* LAE 74440 (BISH, LAE), *Moi & Inu* NGF 25953 (LAE), *Streimann & Students* NGF 27899 (BISH, BO, K, L, LAE, SING); Markham Rd, *Millar* NGF

9909 (BO, L, LAE, SING), NGF 9999 (CANB, K, LAE), NGF 11773 (K, LAE); Oomsis, Millar NGF 23304 (BO, CANB, K, L, LAE, SING), Womersley NGF 14201 (LAE). WNB: Pirilongi Vill, Sayers NGF 21920 (LAE); nr Subdidi Vill, Frodin NGF 26569 (BO, CANB, LAE, NY); Gasmata, Torlu Riv, Sayers NGF 24247 (L, LAE); Mt Talawe, Frodin NGF 26849 (BO, CANB, L, LAE, NY, SING); Ulamona Mission, Isles & Vinas NGF 32306 (BISH, K, L, LAE, MO, PNH); Mt Lakit track, Croft & Katik NGF 41476 (K, LAE, PNH); Nuau logging area, Lelean & Stevens LAE 51271 (BO, CANB, K, LAE); Numondo, Rau 307 (K, L, LAE); Garu Wildlife Area, Kwapena WLL 1096 (UPNG), Mission WLL 2213 (UPNG), Sohmer et al. LAE 75388 (BISH, BO, LAE, W), LAE 75400 (BISH, LAE), LAE 75403 (BISH, BM, BO, LAE). ENB: Powell Harbor, Foreman LAE 52121 (CANB, LAE), LAE 52183 (CANB, K, LAE); Kalas logging area, Kerenga LAE 74244 (L, LAE). NI: nr Taron, Sands et al. SANDS 2091 (CANB, L).

Distribution. Lowland rain forests of New Britain from nearly sea level to ca. 1,000 m; in disturbed forests along the Markham Riv near Lae between 15 and 30 m; and near Bugei, Guam Riv, in Madang Province.

Distinguishing Features. Stipules calyptrate; flowers 5-, 6-, or 7-merous; fruit with bright yellow and orange subripe stages. The leaves somewhat irregular in shape, occasionally with nearly round bases.

Remarks. This species is commonly encountered in parts of West New Britain and in the Markham Valley of New Guinea. The unique field character of the species is that the fruit will remain a bright orange a relatively long period of time before passing to the deep, bright red color that indicates maturity and at which stage it is picked up by local species of pigeons. There is a bright yellow stage prior to the orange subripe stage. An entire population of these plants will possess fruit in the orange stage simultaneously. The stipules are reddish, at least at base, in the field. The populations along the Markham Riv and Guam Riv are somewhat anomalous but definitely of this taxon. The clearly ruminant nature of the endosperm of this taxon makes it somewhat of an anomaly next to some of the species that key out adjacent to it.

Psychotria tenuis Merrill & Perry, J. Arnold Arbor. 27: 213 (1946). Fig. 117.—
Type: Brass 12983 (A, holotype; BO, L, isotypes), IRIAN JAYA: Idenburg Riv, 6 km SW of Bernhard Camp, in rain forest undergrowth, at 1,050 m, from a 3 m high tree, Feb 1939.

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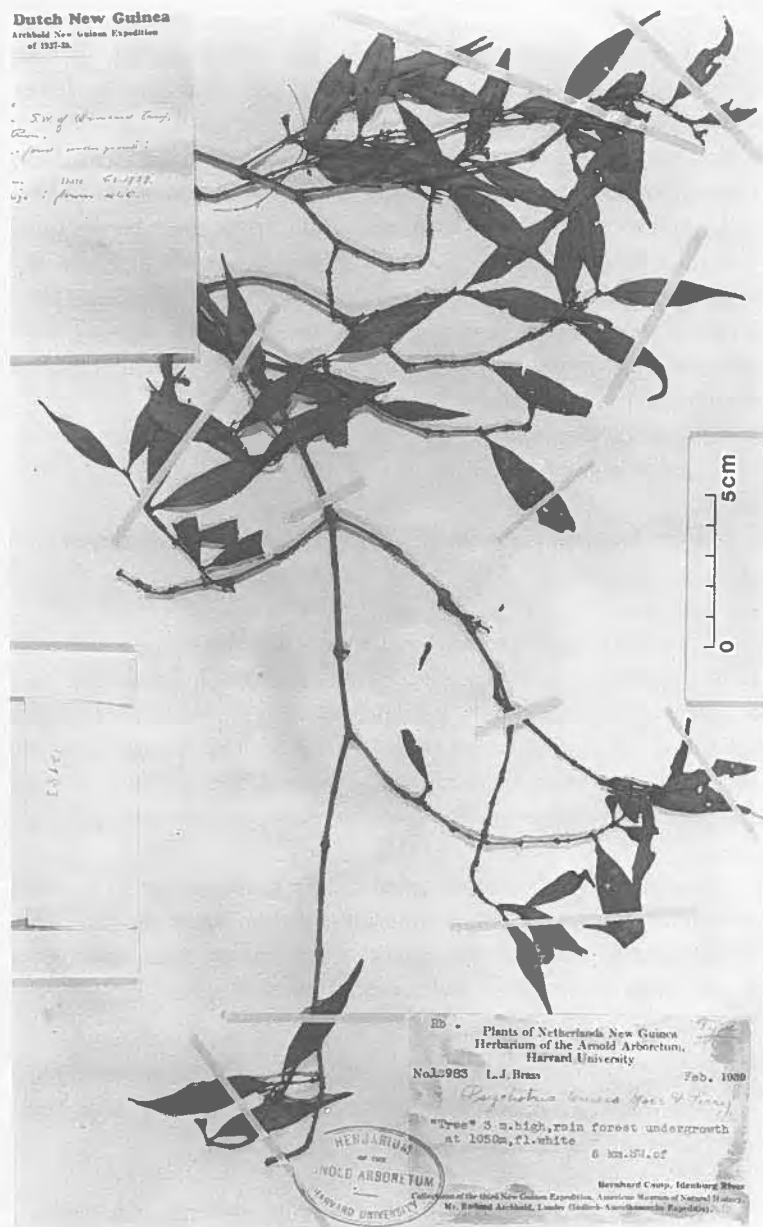


Fig. 117. *Psychotria tenuis*. Brass 12983 (A, holotype).

Shrubs to 3 m tall. Stipules valvate but united into a tube, about 1 mm long, cleft or bidentate. Leaves with petioles 3–4 mm long; blades chartaceous, narrowly lanceolate, glabrous, $0.6 \times 3\text{--}1.4 \times 5$ cm wide and long, the lateral veins 2–5 per side, apex attenuate-acuminate, base acute to acuminate. Inflorescence 1–2 cm long, with a short peduncle about 5 mm long, and with 2–3 primary nodes with opposite branching at each. Flowers 4- to 5-merous, dimorphic(?); calyx and hypanthium 1–1.5 mm long, tube reduced to short teeth; corolla with tube 5–6 mm long, lobes about 1.5 mm long, glabrous without and with hairs at throat within; stamens with filaments and anthers about 1 mm long (pin flower); pistil with style about 4 mm long and with lobes about 1 mm long. Fruit color when ripe unknown, ovoid, about 7 mm long. Pyrenes with 3 ridges on back, and with endosperm not ruminant.

This taxon, quite distinctive, has been collected at least once since it was described. There is a good specimen of it in Lae.

Other Specimens Examined. IJ. Mt Kusemun, *van Royen et al.* 7800 (BO, LAE).

Distinguishing Features. Leaf blades narrow, elliptic-lanceolate, less than 5 cm long, lateral veins 2–5 per side, barely discernible, apex long-acuminate, petiole delicate; inflorescence only 1–2 cm long with short peduncle, bracts small but conspicuous, subtending lateral branches and flowers; flowers relatively large, corolla tube 5–6 mm long; fruit obovoid-ellipsoid, about 7 mm long; pyrenes with 3 very prominent ridges on back, endosperm not ruminant.

Remarks. This species is phenetically quite similar to *P. nanifrutex*. The nonruminant endosperm differentiates it from the latter. As more collections of this taxon come to hand, the reliability of this characteristic can be tested. In form it is also quite similar to *P. subcaudata* Valetton.

Psychotria testacea Sohmer, sp. nov. Fig. 118.—Type: *Kalkman & Tissing* 4229 (LAE, holotype; CANB, isotype), IRIAN JAYA: Star Mts: Sibil Val, in secondary forest, at 1,200–1,300 m.

Frutices 1 m alti sunt, stipulis incognitis sed non calypratis, petiolis 1.3–2 cm longis laminis $2.7 \times 11\text{--}4.7 \times 16$ cm chartaceis vel semicoriaceis elliptico-oblanceolatis basi acuta apice acuto vel breve acuminato in sicco badiaribus nervis lateralibus 10–18 in dimidio quoque, inflorescentia usque ad 2.5 cm longa axi principali in basi verticillatis ramulis ultimis cum 2–3 cymulis 3-floriferis,

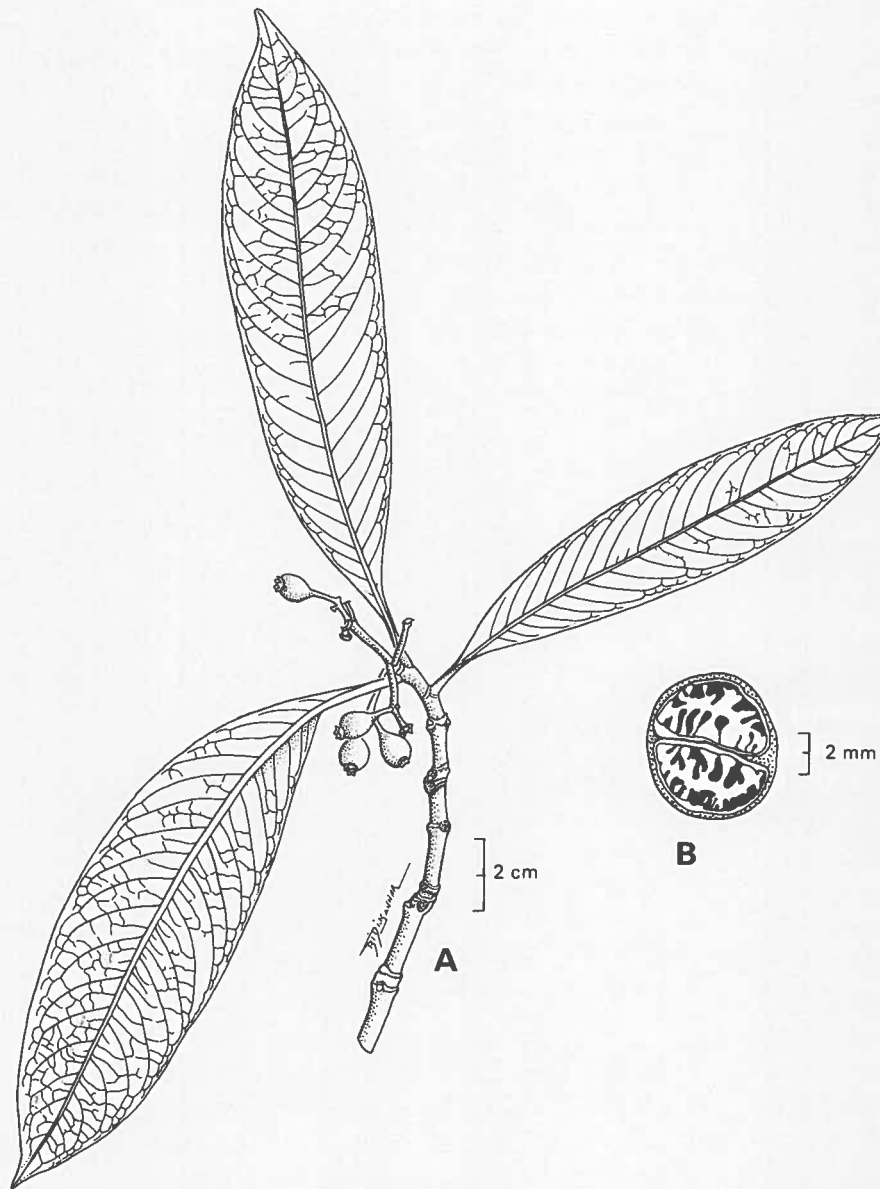


Fig. 118. *Psychotria testacea*. Kalkman & Tissing 4229 (LAE, holotype): A, habit of fruiting branch; B, fruit x.s.

floribus 5-meris dimorphicis(?), calyce et hypanthio 3 mm longis, corollis subcoriaceis immaturis, fructibus 1 cm longis rubris ovoideo-globosis, pyrenis laevibus, endospermo prominente ruminato.

Shrubs 1 m high. Stipules unknown but not calyptrate. Leaves with petioles 1.3–2 cm; blades chartaceous to semicoriaceous, elliptic-oblongate, $2.7 \times 11\text{--}4.7 \times 16$ cm, lateral veins 10–18 per side, not prominent, apex acute to short-acuminate, base acute, drying brick red. Inflorescence with 1 main axis to 2.5 cm long, verticillate branching at base, the ultimate branches with 2–3 cymules of 3 flowers each. Flowers 5-merous, dimorphic(?), on short pedicels; calyx and hypanthium together about 3 mm long; corolla somewhat leathery in texture in bud, immature. Fruit red at maturity, ovoid-globose, remnant calyx tube inconspicuous, about 1 cm long. Pyrenes without ribs on ridges on back, endosperm prominently ruminant.

Other Specimens Examined. PNG. M: Torricelli Mts, *Schlechter 14486* (WRS�).

Distinguishing Features. A species distinctive in the herbarium by the brick red color of the dry leaves.

Psychotria trichocarpa Valeton, Bot. Jahrb. 61: 100 (1927). Fig. 119.—Type: *Schlechter 20036* (K, lectotype, here designated; C, K, S, isolectotypes), PNG: EAST OR WEST SEPIK PROV: Torricelli Range.

Shrubs 1–3 m tall(?), pubescent. Stipules valvate, cleft nearly to middle with lobes drawn out into aristate points. Leaves with petioles 0.8–1 cm; blades pubescent below, linear-elliptic to oblong, $1.6 \times 6.7\text{--}2.1 \times 9.4$ cm, lateral veins 9–12 per side, apex acuminate, base obtuse to truncate. Inflorescence contracted, pubescent, with a short peduncle with several branches each terminated by clusters of subsessile flowers. Flowers pubescent, not subtended by bracts; calyx tube and hypanthium less than 1 mm long, lobes about 1 mm long; corolla thin in texture, tube about 3 mm long. Fruit pubescent, white at maturity. Pyrenes unavailable for study.

Distinguishing Features. Stipules bifid, divided nearly to middle, each lobe drawn out into an aristate point; leaf blades linear-elliptic to oblong, pubescent below, base obtuse or truncate; inflorescence pubescent; fruit pubescent and strongly ribbed.

Remarks. I have not seen other specimens that I can easily refer to this Valeton taxon, although the collections of *P. hebecarpa* I have seen are

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Fig. 119. *Psychotria trichocarpa*. Schlechter 20036 (K, lectotype).

similar. However, *P. trichocarpa* does not have the prominent linear bracteoles characteristic of *P. hebecarpa*.

Psychotria trichostoma Merrill & Perry, J. Arnold Arbor. 27: 214 (1946). Fig. 120.—Type: Brass 3515 (A, holotype), SOLOMON IS: Florida Group: North Nggela I, in coastal-plain rain forest.

Trees or shrubs 3–9 m tall. Stipules calyptrate, pointed, to 8.5 cm long(!), young leaves or inflorescences emerging via a lateral, longitudinal slit. Leaves with petioles 1–3.2 cm long; blades membranaceous to somewhat coriaceous, elliptic to oblanceolate-elliptic, 5×13 – 7.5×18 cm, lateral veins 9–12 per side, apex acute or short and sharp acuminate, base acute to acuminate. Inflorescence with main axis extremely short, internodes so contracted the 4–7 equal branches 1–4 cm long appearing umbellate, the branches terminated by several clusters of cymules, each cymule stalked. Flowers 5-merous, dimorphic(?), pedicellate; calyx and hypanthium 4 mm long, summit truncate, no lobes; corolla immature, fleshy, densely hairy within. Fruit red at maturity, globose, 10–12 mm long, apex rimmed by the persistent calyx, the wall tough but spongy. Pyrenes generally hemispherical in cross section, no ridges, seeds undeveloped in all specimens seen.

Other Specimens Examined. PNG. NS: Bougainville I: nr Tokuaka Vill, Craven & Schodde 464 (LAE); Lake Loloru Crater, Schodde & Craven 3711 (CANB, LAE), 3787 (CANB, LAE), 3860 (CANB, LAE). SI: Choiseul I, Gafui & collectors BSIP 18416 (LAE); New Georgia Group: Kolombangara I, Gafui & collectors BSIP 8703 (LAE), Ma'fufufusi & Hunt 2487 (LAE), Mauriasi & collectors BSIP 11392 (LAE), BSIP 11644 (LAE); E Tetepari I, Mauriasi & collectors BSIP 15969 (LAE); Baga I, Whitmore's collectors BSIP 5554 (LAE); Vangunu I, Maenu'u BSIP 6135 (LAE), Whitmore BSIP 957 (LAE), BSIP 1224 (LAE); Santa Ysabel I, Beer's collectors BSIP 6616 (LAE), BSIP 6768 (LAE), BSIP 6826 (LAE), BSIP 7733 (LAE), BSIP 7804 (LAE); San Jorge I, Green RSS 2697 (LAE); Malaita I, Gafui & collectors BSIP 10190 (LAE), Lipaqueto BSIP 3503 (LAE), Mauriasi & collectors BSIP 13592 (LAE); Ulawa I, Teona BSIP 6228 (LAE); Guadalcanal I, Boraule & collectors BSIP 9075 (LAE), Hunt 2144 (LAE), Nakisi BSIP 7912 (LAE); San Cristobal I, Whitmore BSIP 4292 (LAE); Santa Cruz Group: Vanikoro I, Piaiito BSIP 7013 (LAE); Treasury Is, Mauriasi & collectors BSIP 14111 (LAE); Rennell I, Gafui & collectors BSIP 14697 (LAE).

Distribution. From sea level to ca. 800 m throughout the Solomon

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Fig. 120. *Psychotria trichostoma*. Brass 3515 (A, holotype).

Islands, including Bougainville I of North Solomons Province of Papua New Guinea.

Distinguishing Features. Stipules calyptrate; inflorescence appearing umbelloid; fruit red at maturity, 10–12 mm long.

Remarks. This taxon is imperfectly understood. The description above is based only on the Bougainville material cited. These specimens from Bougainville differ from the specimens from other islands in having larger flowers and fruit, but the inflorescence and floral morphology are much the same. Fieldwork is required with these taxa to fully evaluate the morphological variation seen in the herbarium.

Psychotria tripedunculata Sohmer, sp. nov. Fig. 121.—Type: *van Royen 5413* (LAE, holotype; BO, CANB, L, isotypes), IRIAN JAYA: Radjah Ampat: Wai-geo I: Kambele Hill SE of Kabare, in xerophytic vegetation, at 100 m.

Arbor parva fere 2 m alta est, stipulis valvatis obovato-oblongis glabris apice rotundato vel obtuso non fisso, petiolis 0.5–0.8 cm longis $2 \times 5.5\text{--}4 \times 8$ cm rigide coriaceis glabris obovato-ellipticis basi acuta varie obtusa apice acuto varie obtuso nervis lateralibus 8–11 in dimidio quoque, inflorescentia trichotoma cum 3 pedunculis 1.5–2.2 cm longis subaequalibus omnibus in fasciculo denso florum sessilare 8–15 terminantibus, bracteis vel bracteolis nullis sed in receptaculo cum pilis longis (in sicco subrubris), floribus incognitis, fructibus obovato-fusiformibus sessilibus rubris 3–4 mm longis sine tubo calycis persistentibus, pyrenis non visis.

Small trees about 2 m high. Stipules valvate, glabrous, obovate-oblong, summit round or obtuse, not cleft. Leaves with petioles 0.5–0.8 cm long; blades stiff-coriaceous, glabrous, obovate-elliptic, $2 \times 5.5\text{--}4 \times 8$ cm, lateral veins 8–11 per side, apex acute to obtuse, base acute to obtuse. Inflorescence trichotomous with 3 nearly equal peduncles 1.5–2.2 cm long, each terminated by a dense cluster of 8–15 sessile flowers, no bracts or bracteoles but receptacular area with long, reddish (when dry) hairs. Mature flowers unknown. Fruit red when ripe, obovoid-fusiform, 3–4 mm long but not including persistent, prominent calyx tube, sessile. Pyrenes not available for study.

Other Specimens Examined. IJ. Merauke, *van Royen 4637* (L).

Distribution. Probably low-elevation rain forests in the western part of New Guinea.

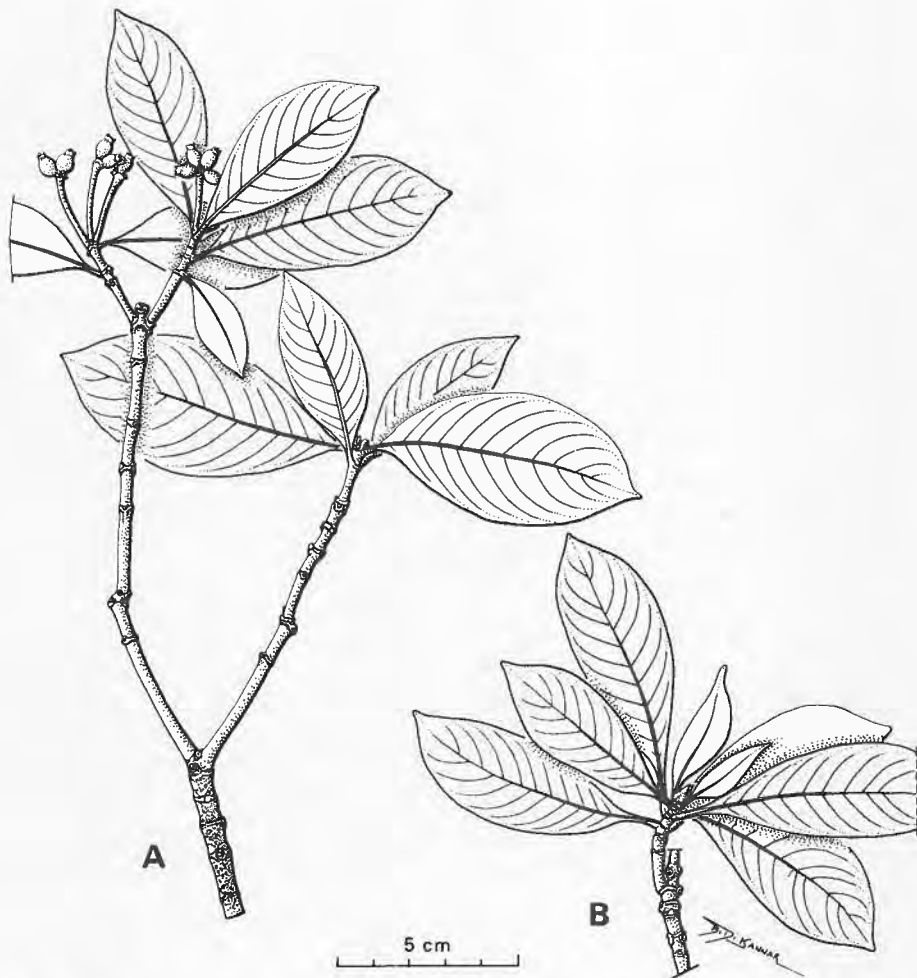


Fig. 121. *Psychotria tripedunculata*. van Royen 5413 (LAE, holotype): A, habit of fruiting branch; B, habit of sterile branch.

Distinguishing Features. Inflorescence trichotomous with the 3 peduncles terminated by sessile clusters of 8–15 flowers; fruit red when ripe, 3–4 mm long.

Remarks. This species can be recognized by the trichotomous nature of the inflorescence and the sessile flowers. It is probably closely related to *P. foremanii*, and it may be conspecific with a species found in the Philippines.

Psychotria vaccinioides Valetton, in Gibbs, *Phytogr. & Fl. Arfak Mtns*, p. 181 (1917). Fig. 122.—Type: *Gjellerup 1202* (L, lectotype, here designated, and isolectotypes), IRIAN JAYA: Arfak Mts: Anggi Lakes: Koebre Mt.

Compact shrubs less than 1 m high that, apparently, can also be epiphytic. Stipules valvate, coriaceous, ovate, minute, less than 2 mm long. Leaves with petioles 0.5–1 mm long; blades stiff-coriaceous, glabrous, epidermis thick, wrinkled and shiny, obovate-spatulate, $4 \times 11-9 \times 13$ (–10 \times 20) mm, lateral veins not discernible to the eye, apex round, base attenuate into the petioles. Inflorescence trichotomous from base, the main or center axis to 1.5 cm long at most, each axis branched $\frac{2}{3}$ – $\frac{3}{4}$ from base and terminating in 2 or 3 cymules. Flowers 4-merous, dimorphic(?), sessile; hypanthium and calyx together about 2.5 mm long, tubular, narrow, less than 0.6 mm wide; corolla white, somewhat fleshy, covered with minute but densely packed hairs, the tube 4–5 mm long, very narrow, very slightly dilated towards apex, a few appressed hairs within, lobes oblong, 2.5–3 mm long, reflexed at anthesis; anthers hastate below (the pollen sacs extended to points, the filament affixed basally between them), about 1 mm long; stigmas 0.2–0.3 mm long in thrums. Fruit probably white at maturity, globose, 3–4 mm long. Pyrenes with at least 1 broadly conspicuous ridge on back, condition of endosperm unknown.

Key to Varieties of P. vaccinioides

1. Leaf blades generally less than 1.5 cm long, most less than 1.2 cm long
 var. *vaccinioides*
 Leaf blades mostly 1.1–2(–3) cm long, most over 1.2 cm long
 var. *kostermansii*

Psychotria vaccinioides var. *vaccinioides*

Leaf blades less than 1.5 cm, most less than 1.2 cm long.

Other Specimens Examined. IJ. Mt Kobreimot, *Sleumer & Vink* BW 14129 (BISH, BO, LAE); Mt Sensenemes, Anggi Lakes, *Sleumer & Vink* BW 14208 (BISH, BO, LAE); Arfak Mts, *Gibbs* 5622 (BM), 5717 (BM), *Kanehira & Hatusima* 13657 (A, BO), *Mayr* 1 (BO); Vassan Mts, *Docters van Leeuwen* 10920 (BO, L).

Distribution. Restricted to high montane forests above 2,300 m in Irian Jaya.



Fig. 122. *Psychotria vaccinioides* var. *vaccinioides*. Gjellerup 1202 (L, lectotype).

Distinguishing Features. Leaf blades thickly coriaceous with a thick, wrinkled, and shiny epidermis, spatulate, less than 1.5 cm long, without discernible lateral veins; inflorescence trichotomous, less than 1.5 cm long.

Remarks. This taxon is unusual for *Psychotria* because of its ericaceous habit. The leaf and flower morphology make it unique in Papuanian *Psychotria* and demonstrate, again, the unusual success of this genus in adapting to various tropical habitats, this one nearly alpine. The definition between what has been recognized as *Psychotria* and what has been recognized as *Amaracarpus* breaks down with a taxon like this.

Psychotria vaccinioides var. *kostermansii* Sohmer, var. nov. Fig. 123.—Type: *Kostermans* 2457 (L, holotype; BO, isotype), IRIAN JAYA: Manokwari: Vogelkop: Arfak: Angi Gita Lake, summit of Mt Shrub, at 2,000 m.

Cum varietas typicus sine lamibus 1.1–2.0 cm longis.

I suspect that with continued collection the morphological gap between this taxon and its sister variety will be filled.

Other Specimens Examined. IJ. Mt Gwamongga: Anggi Gigi Lake, Sleumer & Vink BW 14266 (L).

Psychotria vaccinioidifolia Sohmer, sp. nov. Fig. 124.—Type: *Brass* 12626 (L, holotype; BO, L, isotypes), IRIAN JAYA: Idenburg Riv, 18 km SW of Bernhard Camp, in mossy forest in stunted scrub on an exposed summit, at 2,150 m, from a scrambling shrub 1 m tall.

Frutex usque ad 1 m ascendens est, stipulis valvatis integribus ovatis ca. 3 mm longis apice mucronato, petiolis 1.5–3 mm longis, laminis 8–14 mm longis orbiculari-obovatis coriaceis nitidis in basi attenuatis apice rotundato interdum cum acumini obscuro nervis lateralibus suboculos non caditis omnino cum cuticulo crasso cereo lucido velatis superficie sub lente profunde rugoso, inflorescentia usque ad 1.5 cm longa et a foliis sustentibus plus minusve velatis valde trichotoma ramis subaequalibus eis in 2–3 nodis ramosis, floribus 5-meris dimorphiis(?) glabris, pedicellis ca. 1.5 mm longis, calyce hypanthio fere 1.5 mm longis lobis calycis fere nullis, corollis coriaceis crassis tubo 10–12 mm longo in floribus thrumaceis et in punctis in basi filamentis cum pilis longis parvis lobis 2 mm longis lanceolato-subulatis in flore reflexis, antheris 1.2 mm longis exsertis, stylo stigmatesque valde reductis, fructibus 5–6 mm longis 3–3.5 mm latis licet albis, pyrenis in dorso cum 3–5 liris planis, endospermo non ruminato.

Scrambling shrub to 1 m. Stipules valvate, ovate, about 3 mm long, apex mucronate, entire, not cleft. Leaves with petiole 1.5–3 mm long; blades coriaceous, shiny, cuticle shiny, thick, waxy above and below, the surface appearing deeply wrinkled with the aid of a hand lens, orbicular-obovate, 8–14 mm long, apex round, occasionally with a nearly obscure point, base attenuate onto petiole. Inflorescence strongly trichotomous, the 3 branches nearly equal in size, branches at 2–3 nodes, ultimate branches terminating in well-defined cymules, to 1.5 cm long and somewhat obscured by subtending leaves. Flowers 5-merous, dimorphic(?), glabrous, on short pedicels about 1.5 mm long; calyx and hypanthium about 1.5 mm long, calyx lobes nearly obsolete; corolla coriaceous, glabrous, the

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Fig. 123. *Psychotria vaccinioides* var. *kostermansii*. Kostermans 247 (L, holotype).

BULLETIN 1: BOTANY

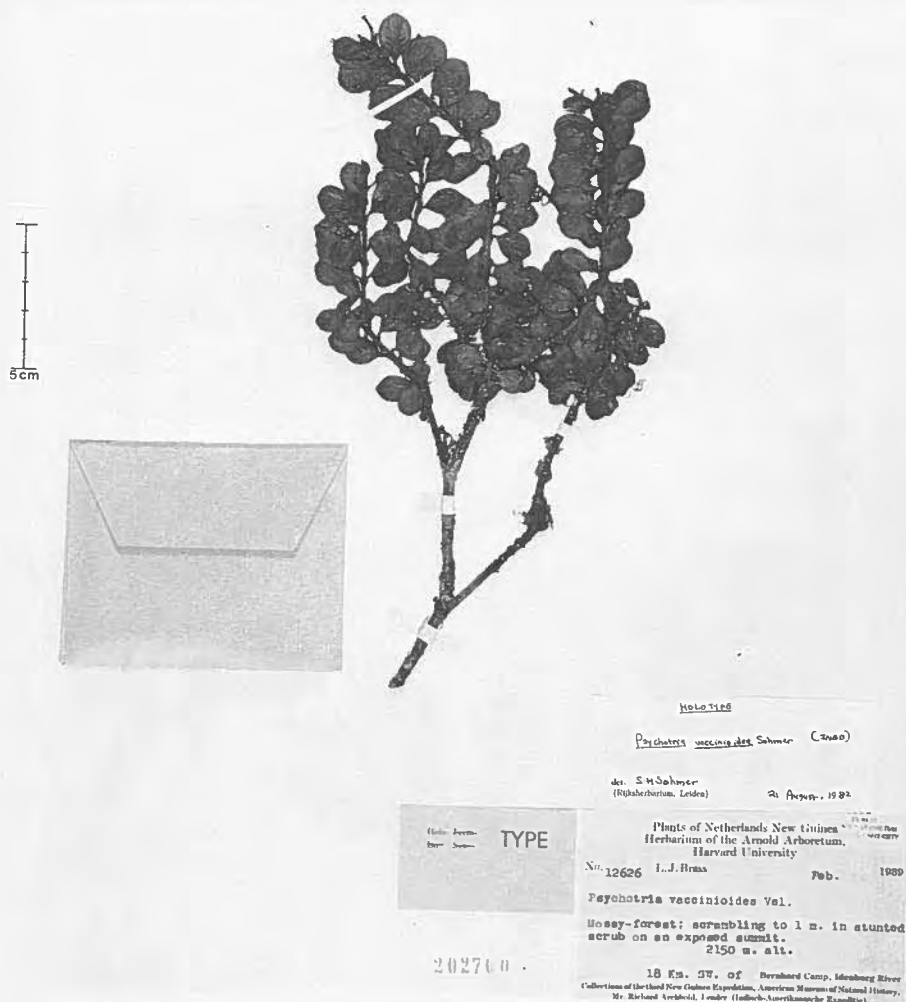


Fig. 124. *Psychotria vaccinioidifolia*. Brass 12626 (L, holotype).

tube 10–12 mm long (in thrum flowers), a few long hairs within where the filaments are attached, lobes lanceolate-subulate, about 2 mm long, reflexed at anthesis; the anthers about 1.2 mm long, exerted beyond throat of corolla tube in thrum flowers; style and stigma much reduced in length. Fruit probably white at maturity, ellipsoid, 5–6 mm long and 3–3.5 mm wide; pyrenes with 3–5 broad, flat-topped ridges on back, endosperm not ruminant aside from the indentations of the seed coat in conforming to the pyrene.

Other Specimens Examined. IJ. Idenburg Riv, Brass 12182 (L).

Distinguishing Features. Small, scrubby habit; leaves waxy, orbicular, lateral veins not visible, blade decurrent down petioles; flowers leathery, corolla tube about 1 cm long with a sharp restriction between it and the lobes; fruit 5–6 mm long.

Remarks. This taxon is most likely very closely related to *P. vaccinioides*. It has been named so that it and *P. vaccinioides* will always be adjacent in herbaria, facilitating comparison. What set this taxon apart from *P. vaccinioides* are the nearly orbicular leaves; the corolla tube, which has a sharp restriction marking it off from the lobes and a complete lack of puberulence (puberulence rather marked on the corolla of *P. vaccinioides*); and the length of the fruit, which is 5–6 mm (3–4 mm in *P. vaccinioides*).

Psychotria valetoniana Sohmer, sp. nov. Fig. 125.—Type: *Sohmer et al.* LAE 75443 (LAE, holotype; BISH, BO, isotypes), PNG: EASTERN HIGHLANDS PROV: Lufa Dist: western slopes of Mt Michael, in disturbed montane forest, at 3,200 m.

Frutices vel arbores 1–3 m alti sunt, stipulis valvatis fere 1 cm longis glabris subulatis anguste lanceolatis apice acuminato, petiolis 0.5–1(–2) cm longis, laminis vulgo 1.5×5.5 – 2.7×9.5 (– 5×14.5) cm glabris anguste ellipticis basi acuta apice acuto-acuminato nervis lateralibus oppositis vel alternatis 8–16 in dimidio quoque, inflorescentia usque ad 3 cm alta cum axi solitario crasso brevi et ex apice cum ramis trichotomis vel illo trichotome ramoso, floribus 4- vel 5-meris dimorphicis glabris, pedicellis brevibus, hypanthio et calyce ad 2 mm longis, lobis brevibus angustis, corollis albis semicarnosis tubo 2 mm longo intra in fauce sparse piloso, lobis 3–4 mm longis, in floribus pinaceis anthesis 1 mm longis, in floribus thrumaceis 2–3 mm exsertis, fructibus 5 mm longis albis ellipsoideo-globosis, pyrenis in dorso cum liris valdosis compluribus, endospermo prominente ruminato.

Shrubs or small trees 1–3 m high. Stipules valvate, membranaceous, glabrous, subulate narrow-lanceolate, to 1 cm, apex acuminate, not cleft, base reddish. Leaves with petioles 0.5–1(–2) cm; blades chartaceous, glabrous, narrowly elliptic, 1.5×5.5 – 2.7×9.5 (– 5×14.5) cm, lateral veins 8–16 per side, opposite or alternate, apex acute-acuminate, base acute to attenuate-decurrent. Inflorescence to 3 cm, either with 1 short, stout main axis which branches trichotomously $\frac{1}{3}$ – $\frac{1}{2}$ from base or trichotomously branched from base, nodes 1–3, the branches with

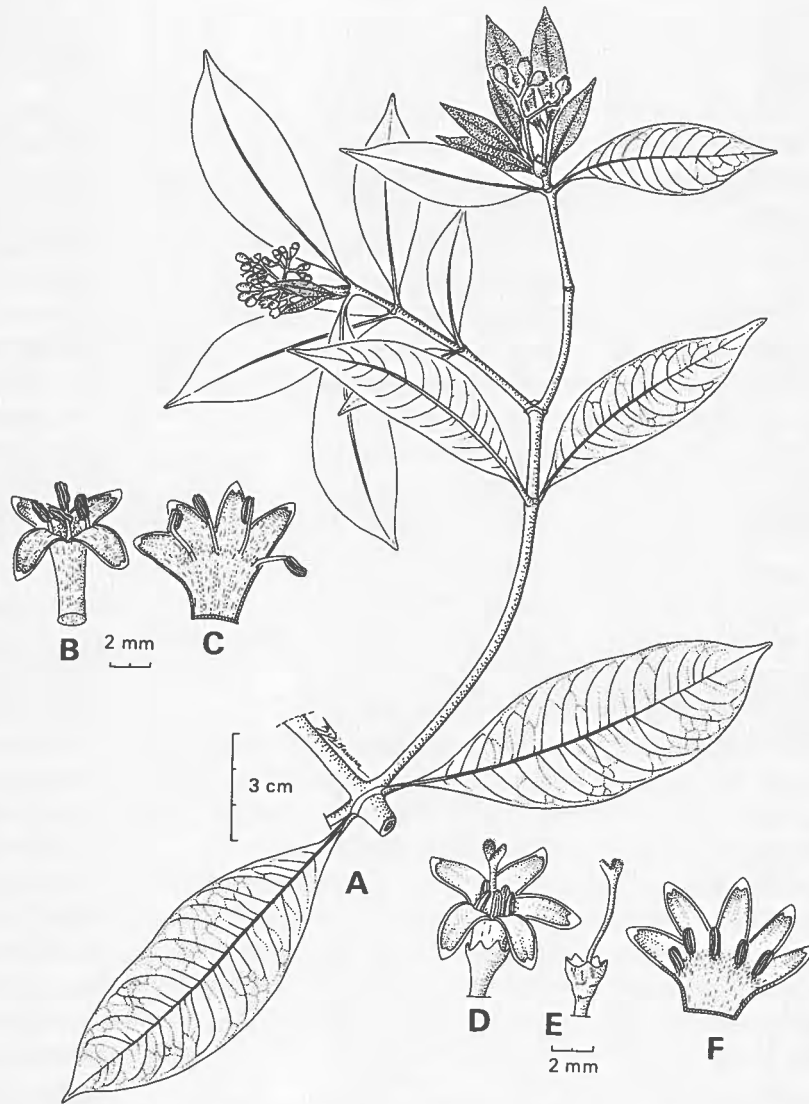


Fig. 125. *Psychotria valettoniana*. A, *Sohmer et al.* LAE 75443 (LAE, holotype): habit of fruiting branch. B-C, *Sohmer et al.* LAE 75444 (LAE): B, thrum flower at anthesis; C, corolla of thrum flower split and spread out. D-F, *Sohmer et al.* LAE 75443 (LAE, holotype): D, pin flower at anthesis; E, pin flower with corolla removed; F, corolla of pin flower split and opened.

a number of terminal cymules. Flowers 4- or 5-merous, dimorphic, glabrous, on short pedicels; hypanthium and calyx to 2 mm long, lobes narrow, short, acute; corolla white, semifleshy, tube about 2 mm long, sparsely hairy within at throat, lobes 3-4 mm long, longer than tube; anthers about 1 mm long in pin flowers, exserted 2-3 mm beyond corolla tube in thrum flowers. Fruit white at maturity, ellipsoid-globose, about 5 mm long. Pyrene with several shallow ridges on back, endosperm prominently ruminant.

Other Specimens Examined. IJ: Japen-Biak, *Aët & Idjan* 658 (BO, L); Rouffaer Riv, *Docters van Leeuwen* 10284 (BO, K, L); Wissel Lake region, *Eyma* 5364 (BO, L). PNG: E: nr Wabag, *Flenley* ANU 2263 (CANB, LAE), *Womersley* NGF 11073 (BISH, BO, L, LAE, SING). WH: Baiyer-Jimi Divide, *Sohmer et al.* LAE 75504 (BISH, LAE), LAE 75508 (L, LAE); Mt Hagen, *Pullen* 118 (CANB, L, LAE), 146 (LAE), *Womersley* NGF 9505 (LAE); Mt Giluwe, *Robbins* 1102 (CANB); nr Nondugl, *Womersley & Hoogland* 4988 (BO, L); Mt Kum, *Ross* NGF 9604 (LAE). C: Sinasina, *Hide* 215 (LAE), 278 (LAE); Mt Willa, *Kerenga & Colin* LAE 74477 (L, LAE), 74479 (BISH, CANB, L, LAE). EH: nr Wanatabi, *Hartley* TGH 13146 (CANB, K, LAE); Obura, *Hays* 193 (LAE), 280 (LAE); Okapa, *Henty* NGF 10630 (LAE); Mt Michael, *Sohmer et al.* LAE 75444 (LAE). Mo: nr Bulolo, *Bridgland* NGF 3026 (LAE); nr Kasamombe airstrip, *Katik & Taho* LAE 56386 (CANB, K, LAE); Sattelberg, *Clemens* 1079A (BR, L); Partep, *unknown collector* NGF 3026 (K); "Ibu Gebirge," without further data, *Schlechter* 14080 (K). WNB: Nakanai, *Vinas & Akakavara* LAE 579731 (LAE). ENB: Mt Lululua, *Stevens et al.* LAE 58417 (LAE). NI: Mt Angil, *Sands et al.* SAND 2405 (CANB, L).

Distribution. Widely distributed throughout the higher elevations of Papua New Guinea and Irian Jaya in montane forests from 1,600 to 3,200 m (most from over 2,200 m).

Distinguishing Features. Plants generally of short stature; stipules lanceolate, apex acuminate; leaf blades narrow-elliptic; inflorescence generally small and trichotomous; corolla lobes about 2 × length of tube.

Remarks. This taxon is fairly commonly encountered in the field. It is most often confused with *P. leucococca*. The stipules in the latter, however, are usually cleft with 2 sharply acuminate apices. If this is a good characteristic, then the gross morphological similarities between the taxa are probably due to adaptation to the same high montane environment. If, however, the nature of the stipules is determined to be a variable character, this taxon and *P. leucococca*

would have to be combined. Another taxon with which *P. valetoniensis* shares a strong overall morphological resemblance is *P. pulleniana*. Here, again, stipular form separates them.

Psychotria vanimoensis Sohmer, sp. nov. Fig. 126.—Type: Streimann LAE 52793 (LAE, holotype; L, isotype), PNG: WEST SEPIK PROV: Vanimo Dist: Vanimo hinterland, in lowland rain forest-sago swamp, at 250 m.

Frutices vel arbores usque ad 2 m altae sunt, stipulis valvatis usque ad 1 cm longis late ovatis tenuibus apice fisso, petiolis 3.5–5 cm longis, laminae 7.5×19 – 10×26 cm semicoriaceis glabris obovatis basi acuminata varie attenuata apice acuminato varie cuspidato nervis lateralibus 13–15 in dimidio quoque, inflorescentia alba quam foliis sustentibus breviori 14–17 cm longa 17–20 cm lata vulgo cum axi principali robusto per partem $\frac{1}{4}$ – $\frac{1}{3}$ eramoso nodis promariis 3–5 cum ramis oppositis eis inferis saepe 10 cm longis cum bracteis basalibus foliaceis usque ad 7 cm longis et per $\frac{2}{3}$ – $\frac{3}{4}$ eramosis, ramulis apicalibus in apice cum cymulis divergentibus pedunculis 4–8 mm longis, floribus 5-meris dimorphicis, hypanthio 1.5 mm longo, calyce 0.4 mm longo plerumque cum lobis inaequalibus obtusis puberulentis, corollis albis tubo 3.5–4 mm longo ad basim angusto ad apicem dilatato extra glabro intra piloso, lobis 2 mm longis ovato-subulato in floribus pinaceis antheris 0.5–0.6 mm longis, pistilo in floribus pinaceis cum stylo 5 mm longo, fructibus albis 5 mm diametro globosis, pyrenis in dorso laevibus, endospermo paulum ruminato.

Shrubs or small trees to 2 m tall. Stipules valvate, thin, broadly ovate, to 1 cm long, apex cleft. Leaves with petioles 3.5–5 cm long; blades semicoriaceous, glabrous, obovate, 7.5×19 – 10×26 cm, lateral veins 13–15 per side, apex acuminate to cuspidate, base acuminate to attenuate. Inflorescence white at anthesis, shorter than subtending leaves, 14–17 cm long and 17–20 cm wide, usually with 1 robust main axis unbranched $\frac{1}{4}$ – $\frac{1}{3}$ of its length, 3–5 primary nodes with opposite branching at each, the lower lateral branches often 10 cm in length, subtended by leaflike bracts to 7 cm long, unbranched for $\frac{2}{3}$ – $\frac{3}{4}$ of their length, the ultimate branches bearing widely spreading cymules, each cymule on a peduncle 4–8 mm long. Flowers 5-merous, dimorphic; hypanthium about 1.5 mm; calyx 0.4 mm, consisting mostly of unequal, obtuse lobes, puberulent; corolla white, tube glabrous without, hairy within, narrow at base, dilated towards summit, about 3.5–4 mm long, lobes ovate-subulate, about 2 mm long, reflexed at anthesis; anthers of pin flowers 0.5–0.6 mm long; pistil with style about 5 mm long in pin flowers. Fruit white at maturity, globose, about 5 mm in diameter. Pyrenes without ridges, endosperm slightly ruminant.

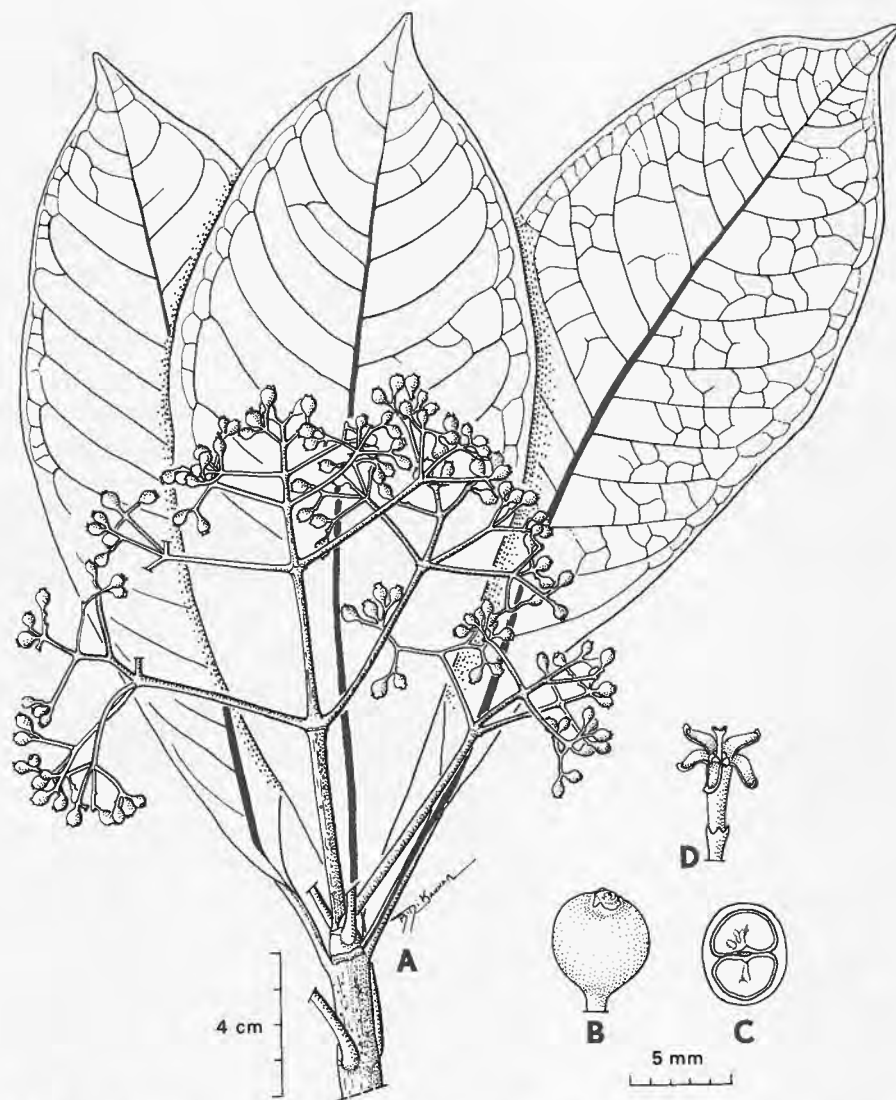


Fig. 126. *Psychotria vanimoensis*. Streimann LAE 52793 (LAE, holotype): A, habit of fruiting branch; B, flower; C, fruit; D, fruit x.s.

Other Specimens Examined. PNG. ES: road to Gavien, Essig & Martin LAE 55115 (L, LAE).

Distinguishing Features. Leaf blades obovate; inflorescence white, large, spreading, but shorter than subtending leaves, large bracts at base of primary branches; fruit white, globose.

Remarks. This is probably another member of the *P. ramulosa* complex. Its clearly obovate, large leaves and robust, widely spreading inflorescence shorter than the leaves help delimit this taxon from the others of the complex. Morphologically, *P. vanimoensis* is very similar to *P. ramulosa* and, perhaps, *P. streimanii*, and all 3 are found in the same habitat and area. However, the fruit of this taxon are about 5 mm in diameter whereas the fruit of *P. streimanii* are about 1 cm long. The leaves of *P. ramulosa* are smaller than in this taxon. More collections of these taxa are needed to better qualify their relationship.

Psychotria versteegii Deb & Gangopadhyay, Taxon 31: 546 (1982). Fig. 127.
Psychotria polyneura Valetton, in Lorentz, Nova Guinea 8: 493 (1911) nec Kurz, J. Bot. 4: 327 (1875).—Type: *Branderhorst* 359 (L, lectotype, here designated; BO, L, isolecotypes), IRIAN JAYA: Noord-Fluss.

Small tree to 4 cm; twigs usually swollen between the nodes, hollowed within, the cavities inhabited by ants who produce holes in the twigs to the outside, the specific ant-plant relationship otherwise unknown. Stipules valvate, glabrous, ovate-deltoid, 5–10 mm long, apex acute, not cleft, often keeled in the center with the central vein decurrent onto the stem. Leaves with petioles 1.3–2.6 cm long; blades coriaceous to semicoriaceous, obovate-ob lanceolate to oblanceolate-elliptic, $4.3 \times 9-9 \times 25$ cm (often abnormally small leaves occur, most over 12 cm long), primary veins 9–17 (usually about 15) per side, each vein joining the one above it near the margin, apex round with a sharply acute to acuminate tip, base acuminate and somewhat decurrent down petiole. Inflorescence white at anthesis, trichotomous, 1 main axis and 2 smaller branches diverging from it at the base, to 12 cm long, with verticillate or, sometimes, opposite branching at each node, puberulent on most axes. Flowers 4- or 5-merous, dimorphic(?), on minute pedicels. Calyx tube and hypanthium together less than 1 mm long, somewhat puberulent, lobes less 0.5 mm long, blunt, obtuse; corolla white, glabrous, tube about 3 mm long, lobes subulate-ovate, about 2 mm long (in thrum flowers), reflexed at anthesis; anthers exerted beyond the throat of the corolla tube. Fruit unknown, probably red at maturity.

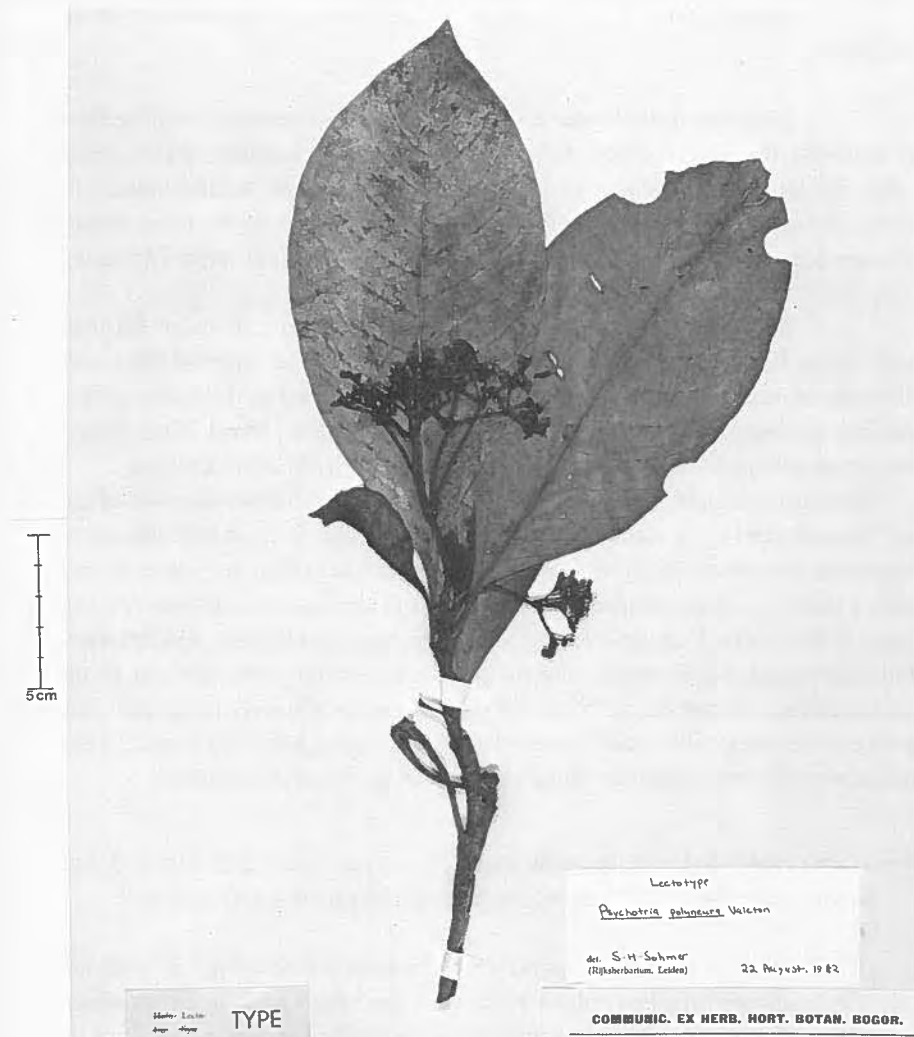


Fig. 127. *Psychotria versteegii*. Branderhorst 359 (L, lectotype).

Other Specimens Examined. IJ. Nr "Geluks Hill," von Römer 534 (BO, L), Versteeg 1394 (BO, L); Utaqua Riv to Mt Carstensz, Boden Kloss s.n. (BM). PNG. WH: Dagarunga ridge, Henty & Streimann NGF 38941 (BO, CANB, K, L, LAE). Mo: Sattelberg, Clemens & Clemens 382 (BR); nr Opo Crk, Kerenga et al. LAE 73884 (L, LAE, UPNG). Ce: nr Kerau Mission, Frodin & Hallpike UPNG 738 (CANB, K, L, LAE, UPNG). W: nr Subitana, Hartley TGH 10783 (L, LAE).

Distribution. In moist forest through much of New Guinea, at middle elevations.

Distinguishing Features. Trichotomous inflorescence completely white at anthesis; the leaves oblanceolate-obovate to oblanceolate-elliptic, relatively large, the lateral veins about 15 per side; stipules valvate, keeled, entire. Particularly, the ant-inhabited cavities in the swollen internodes of the twigs distinguish this species of *Psychotria* from all others known at present from Papuasias.

Remarks. The specimens at Leiden have no collection information with them, but Valeton (1911), who had recourse to the original field notes of the collections, indicated that the type collection (as well as the other collections listed) was obtained in southwestern New Guinea on the "Nord-Fluss, Umgegend des Geluks-Hugels" in May of 1908. It was a tree with white flowers.

The morphological affinity between this species and *P. apiculata*, noted already by Valeton (1911), is not to be denied. This taxon is probably related to all Papuasian *Psychotria* with trichotomous inflorescences that are white at anthesis, have a relatively large number of lateral veins in the leaves, and bear red fruit. In unpublished notes, Valeton referred to the Versteeg, von Römer, and Branderhorst collections and, interestingly, had the following sentence crossed out of his unpublished manuscript draft: "Von den damals untersuchten Exemplaren sind mir; jetzt nur Versteeg 1394 und Branderhorst 359 zugänglich." Valeton (1911) also considered his new taxon to closely resemble *P. stricta* Schumann.

Psychotria vinkii Sohmer, sp. nov. Fig. 128.—Type: *Vink BW 11292* (LAE, holotype), IRIAN JAYA: Japen I, in primary forest on peaty clay soil.

Frutices ad 3 m alti sunt, vel suffrutescens ad 0.7 m altis, stipulis valvatis tenuibus ovato-lanceolatis usque ad 1 cm longis apice acuto acuminato non fisso sed interdum cum 2 cuspibus brevibus aceribus, petiolis 2–3.2 cm longis, laminis 4.2 × 12.5–7 × 20 cm oblanceolatis basi longe attenuata apice curvate acuminato glabris vel infra minute adpresse puberulis nervis lateralibus 14–17 in dimidio quoque, inflorescentia fere 10 cm longa quam foliis brevibus delicatis axi principali subtili per $\frac{1}{3}$ basalem eramoso vel sessili et 2 nodis primariis cum ramis oppositis eis indeterminatis, floribus maturis incognitis, fructibus 13–15 mm longis albis ellipsoideis costatis, pyrenis in dorso cum liris acerbis, endospermo laevi nonruminato.

Shrubs to 3 m high or suffrutescens to 0.7 m high. Stipules valvate, thin, ovate-lanceolate, to 1 cm long, apex acute or acuminate (not cleft, although apex may

SOHMER: NEW GUINEA AREA PSYCHOTRIA

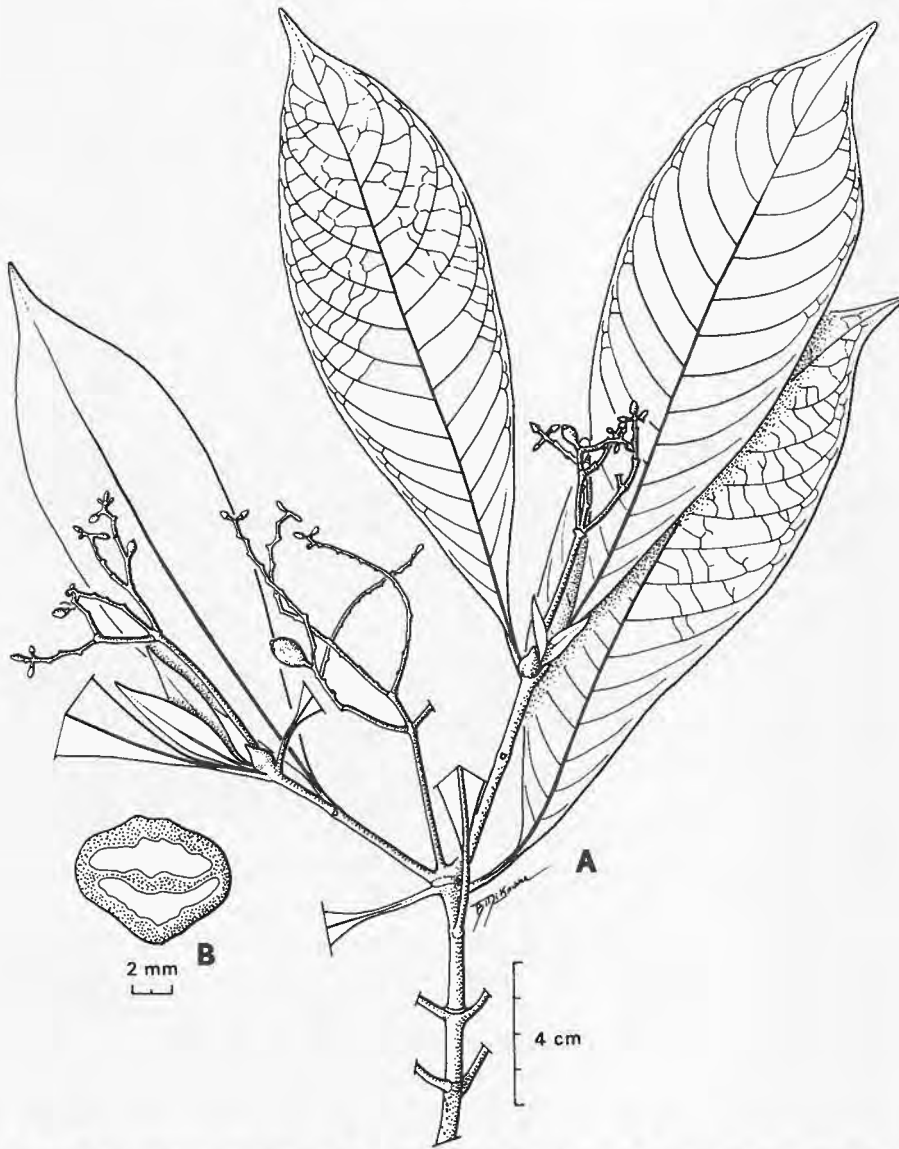


Fig. 128. *Psychotria vinkii*. Vink BW 11292 (LAE, holotype): A, habit of fruiting branch; B, fruit x.s.

terminate in 2 short, sharp points). Leaves with petioles 2–3.2 cm long; blades membranaceous, glabrous or minutely appressed puberulent below, oblanceolate, 4.2×12.5 – 7×20 cm, lateral veins 14–17 per side, apex acuminate (drawn out into a narrow, curved, acuminate point), base long-attenuate. Inflorescence delicate, to about 10 cm long, shorter than the leaves, 1 thin main axis unbranched to $\frac{1}{3}$ its length from base, or inflorescence nearly sessile, 2 primary nodes with opposite branching at each, the branches functionally indeterminate as new extensions of the cymules appear to be continuously initiated by growth of the branch from beneath the morphologically terminal flower. Flowers cleistogamous, no functional corolla, stamens or styles produced, the plants evidently apomictic, the flowers looking much like young buds and fruit appearing quickly. Fruit white at maturity, ellipsoid, 13–15 mm long, ribbed. Pyrenes with a sharp ridge on back (nearly triangular in outline in cross section), endosperm smooth, uniform, definitely not ruminant. Most of the pyrenes with fully-formed seeds.

Other Specimens Examined. IJ. Nr Seroei, *Aet & Idjan* 810 (L); Mt Doorman, *Lam* 1523 (BO), 1527 (BO); Rouffaer Riv, *Docters van Leeuwen* 10346 (BO, K, L); Mamberamo, *Docters van Leeuwen* 11245 (BO, K, L, SING), *Lam* 491 (BO, K), 571 (BO, L), *Thomsen* 657 (BO, L); Van Rees Mts, *Docters van Leeuwen* 9215 (BO, K, L).

Distribution. Apparently a plant of wet soils of low elevation alluvial forests.

Distinguishing Features. Leaf blades membranaceous, lateral veins 14–17 per side; inflorescence functionally indeterminate due to continuous initiation of new cymules from beneath the morphologically terminal flower of each branch; fruit ellipsoid; pyrenes triangular in outline, endosperm smooth and ruminant.

Remarks. This is a most distinctive species because of the nature of the inflorescence, fruit, and pyrenes. The Lam and Thompson specimens were apparently annotated by Valeton himself as "*Psychotria subherbacea* Val." In Leiden I had the opportunity to study Valeton's notes and review photographs he made before his death. It is quite clear he intended to describe this as a new species, although I found no direct treatment of this species in the files. As *P. subherbacea* has already been taken up for a species of *Psychotria* from Africa, I have named this taxon after the collector of a later collection in Lae. Before naming this taxon, I searched the literature for a species published by Valeton in which these specimens are cited and, finally, for a description that matched the specimens in hand, on the possibility that he had treated this species but changed

the name before it was published. The type collection was a plant described as being a 70 cm herb, but the specimen clearly represents a woody plant.

Psychotria waiuensis Sohmer, sp. nov. Fig. 129.—Type: Gillison & Kairo NGF 25626 (LAE, holotype; BO, CANB, K, L, LAE, isotypes), PNG: MOROBE PROV: Waiu Bay, in coastal rain forest, at sea level.

Frutex fere 3 m altus est, stipulis valvatis glabratis obovatis rigidis ad apicem latioribus apicibus fissis marginibus tenuibus integribus, petiolis 0.6–1 cm longis laminis 6.5 × 15–6.5 × 17.5 cm chartaceis glabris elliptico-obovato basi acuta vel obtusa apice acuto vel cuspidato nervis lateralibus 12–14 in dimidio quoque, inflorescentia 4–7 mm longa quam folia sustenta breviori solum in apice ramosa, ramis paucis congregatis in 2 nodis primariis verticillatis, floribus paucis immaturis, fructibus 7 mm longis minusque 3.5 mm latis albis ellipsoideis, pyrenis in dorso cum 5 liris prominentibus, endospermo licet non ruminato.

Shrub about 3 m tall. Stipules valvate, stiff, persistent, glabrous at maturity, obovate, broadest towards the apex, cleft, margins thin and entire. Leaves with petioles 0.6–1 cm long; blades chartaceous, glabrous, elliptic-obovate, 6.5 × 15–6.5 × 17.5 cm, lateral veins 12–14 per side, apex acute or cuspidate, base acute or obtuse. Inflorescence 4–7 cm long, shorter than subtending leaves, branched only at top, branches few and close, contracted, verticillate at the 2 primary nodes, few flowered. Flowers immature in specimen available. Fruit white, ellipsoid, about 7 mm long, less than ½ as wide; pyrenes with 5 prominent ribs on back, endosperm probably not ruminant.

Distinguishing Features. Stipules persistent, prominent; leaves with short, stout petioles, blades often strongly obovate; inflorescence with long peduncle and only branching near the top, sparsely flowered; pyrenes with 5 ribs.

Remarks. The inflorescence reported to be white by the collectors of the holotype specimen, the only specimen available, places this taxon superficially with the *P. ramulosa* complex, but the narrow-ellipsoid fruit with ribbed pyrenes belies this. The compressed inflorescence and the shape of the fruit characterize this species.

Psychotria wichmannii Valetton, in Lorentz, Nova Guinea 8: 489 (1911). Fig. 130.—Type: Wichmann 560 (*Atasrip* 30) (L, lectotype, here designated; BO, isolectotype), IRIAN JAYA: Hiri Riv.

Psychotria ochnidiphora Wernham, in Ridley, Trans. Linnean Soc. (London) 9: 76 (1916).—

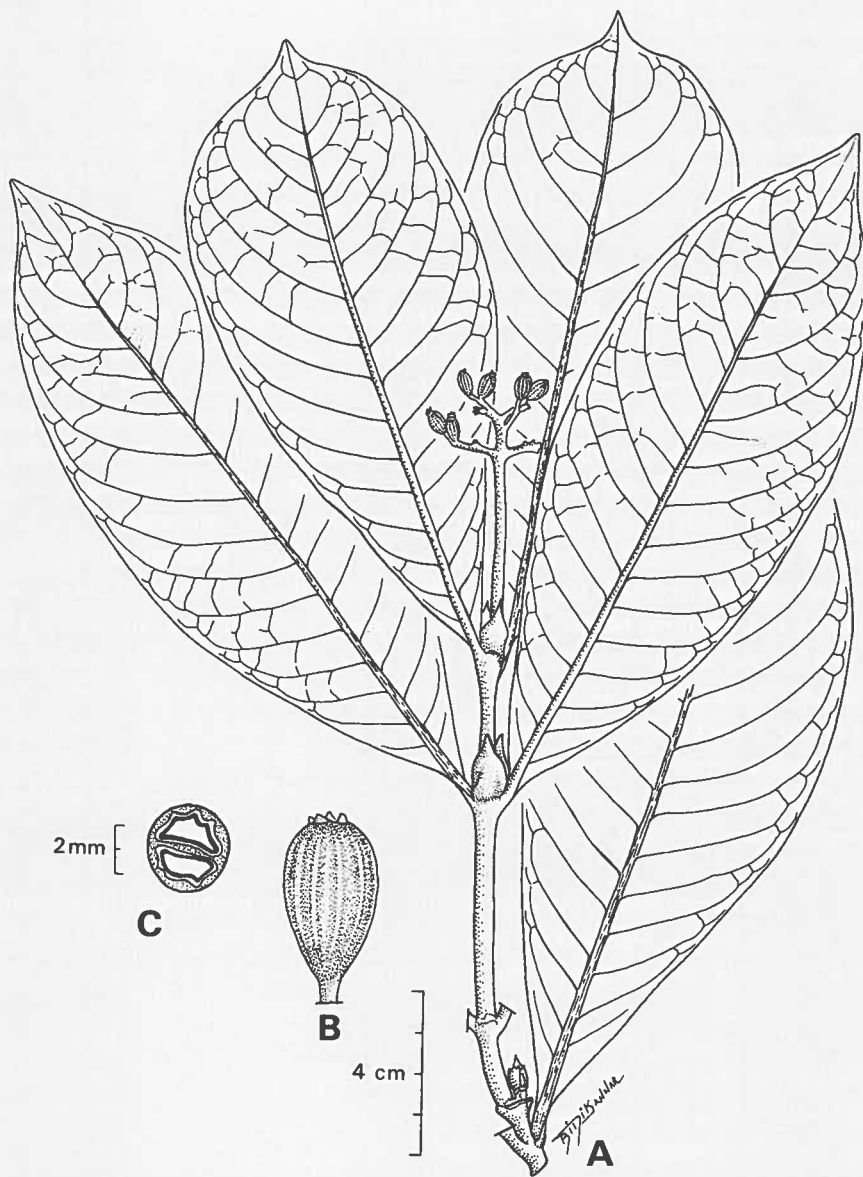


Fig. 129. *Psychotria waiuensis*. Gillison & Kairo NGF 25626 (LAE, holotype): A, habit of fruiting branch; B, fruit; C, fruit x.s.

SOHMER: NEW GUINEA AREA PSYCHOTRIA

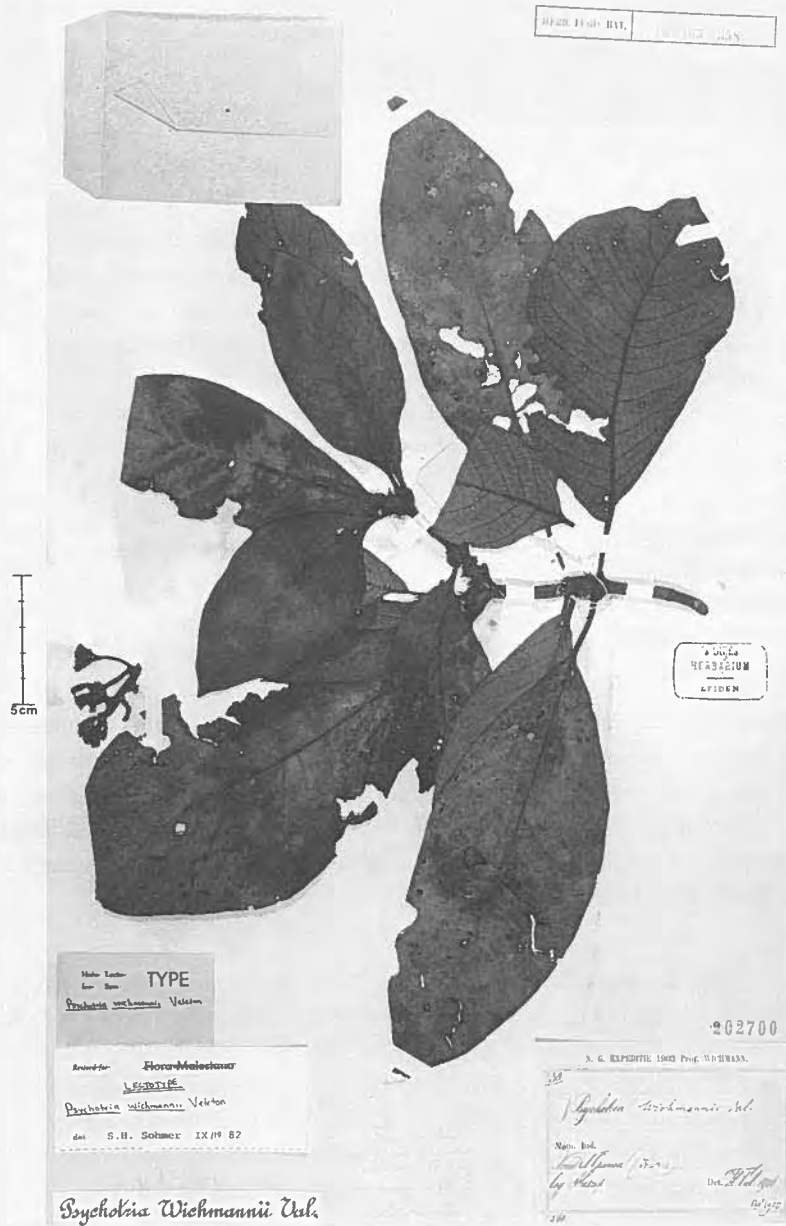


Fig. 130. *Psychotria wichmannii*. Wichmann 560 (L, lectotype).

BULLETIN 1: BOTANY

Type: *C. Boden Kloss s.n.* 1912-13 (BM, lectotype, here designated, and isolectotype), IRIAN JAYA: Utakwa Riv to Mt Carstensz, Canoe Camp, A.F.R. Wollaston Expedition: 1912-13.

Shrubs or small trees 1.5-5 m (most under 2.5 m); young twigs pubescent with white hairs that turn reddish brown after drying. Stipules valvate, not fused at all at base, ovate, to 2 cm long, deeply cleft at least $\frac{1}{2}$ of length at top, lobes each acuminate and pubescent all over or at least on central ridges and margins. Leaves with petioles 1.5-5 cm long; blades chartaceous, prominently rugose (in vivo), crossveins numerous and prominent, broadly obovate to ovate, $3.5 \times 12-13.5 \times 25.5$ cm, lateral veins 14-18 per side that are impressed above and prominent below (very conspicuous in vivo), pubescent below, particularly on veins, apex tip usually short, sharp acuminate, base obtuse, acute or acuminate. Inflorescence at first often compact, becoming elongated and spreading in fruit, with 1 stout, short peduncle (unbranched main axis) to about 3 cm, 3-4 primary nodes usually with verticillate branching at lower nodes, each branch widely diverging and with only 2 branches towards the top, each branch subtended by linear-subulate bracts to 8 mm long. Flowers 5-merous, dimorphic(?), sessile at first, becoming pedicellate in fruit; hypanthium about 1 mm long, pubescent; calyx tube about 0.5 mm, crowned with lobes narrow-subulate, to 3 mm, reflexed at anthesis; corolla tube slightly dilated towards the summit, to about 4.5 mm (of Gulf Province individual), hairy at the throat, somewhat pubescent without, lobes linear, nearly as long, reflexed and curled back at anthesis; anthers about 1 mm long, exerted nearly 4 mm beyond throat. Fruit white at maturity, globose, 6-8 mm long, often hairy. Pyrenes with 2-3 prominent but irregular and wrinkled ridges on back, a number of smaller, irregular wrinkles all around the pyrene surface, endosperm barely ruminant.

Other Specimens Examined. IJ. Vogelkop Pen: nr Teminaboean, *Versteeg* BW 7450 (L, LAE); Kp. Argoeni, *Aët (exp. Lundquist)* 618 (BO, K, L); Albatros Bivouac, *Docters van Leeuwen* 9028 (BO, L); Mamberamo, *Docters van Leeuwen* 11205 (BO); Waobe, *Satake & Niimura* 712 (L). PNG. G: Kapau & Tauri rivers, *Schodde & Craven* 4628 (L, LAE). WNB: nr Ourea, *Buderus* NGF 23924 (BISH, BO, CANB, K, L, LAE, NY, PNH, SING); Ulamona Mission, *Isles & Vinas* NGF 32322 (CANB, K, LAE); Garu Wildlife Management Area, *Sohmer et al.* LAE 75369 (BISH, LAE), LAE 75394 (BO, LAE); Nuau logging area, *Lelean & Stevens* LAE 51270 (BO, CANB, K, L, LAE); Mt Uluwan, *Lelean & Stevens* LAE 58564 (LAE); Kapiura Riv, *Henty* NGF 29393 (BO, CANB, K, LAE), *Sohmer et al.* LAE 75270 (BISH, BO, LAE), LAE 75281 (LAE), LAE 75284 (BISH, LAE),

LAE 75286 (BISH), LAE 75313 (LAE); upper Johanna Riv, *Frodin* NGF 26466 (CANB, LAE, NY).

Distribution. Commonly occurring in the lowland forests below 300 m of West New Britain Province, Gulf Province in Papua New Guinea, and similar habitats in parts of Irian Jaya; generally favoring alluvial forests.

Distinguishing Features. Small shrub with stipules deeply cleft at apex; leaf blades prominently rugose with veins impressed above, conspicuous below, pubescent; calyx lobes subulate and to 2 mm long; fruit white, globose; pyrenes irregularly but prominently ridged.

Remarks. There are 2 sheets of the Boden Kloss collection from Canoe Camp at BM. Both have labels identifying them as types and both presumably came from the same gathering. I have herein designated one of these as lectotype and the other as isolectotype.

This species is common and relatively easy to recognize. It appears to occupy the same niche in West New Britain that *P. ectasiphylla* occupies in Madang Province. With more material from the western parts of New Guinea, it will become easier to analyze variation in the species.

Psychotria womersleyi Sohmer, sp. nov. Fig. 131.—Type: *Dobumaba* NGF 49109 (LAE, holotype; L, isotype), PNG: EASTERN HIGHLANDS PROV: Kainantu Dist: Kainantu, in montane forest on the slopes of a ridge, at 1,800 m.

Arbores parvae fere 5 m altae sunt, stipulis valvatis usque ad 1 cm longis ovatis apice acuto varie acuminato non fisso, petiolis 2.5–3 cm longis 6.5 × 15–12 × 25 cm coriaceis glabris obovatis basi acuminata varie attenuata apice breve acuminato nervis lateralibus 10–15 in dimidio quoque, inflorescentia usque ad 22 cm longa et lata axi principali crasso per $\frac{1}{4}$ – $\frac{1}{3}$ partem basalem eramoso nodis primariis 3–4 cum ramis oppositis vel verticillatis omnibus puberulentis, ramulis cum 3–4 cymulis sessilibus in pedunculo brevis crasso, floribus 5-meris dimorphicis, hypanthio 2 mm longo, calyce 1 mm longo tubo definato lobis tam longis acutis vel obtusis corollis cum tubo 2 mm longo intra piloso lobis fere 2 mm longis subulatis in flore reflexis in floribus thrumaceis 1 mm longis, fructibus immaturis ovoideis puberulis cum tubo calycis prominenti persistenti, pyrenis laevibus, endospermo ruminato.

Small trees about 5 m tall. Stipules valvate, ovate, to 1 cm, apex acute to acuminate (not cleft). Leaves with petioles 2.5–3 cm long; blades coriaceous,

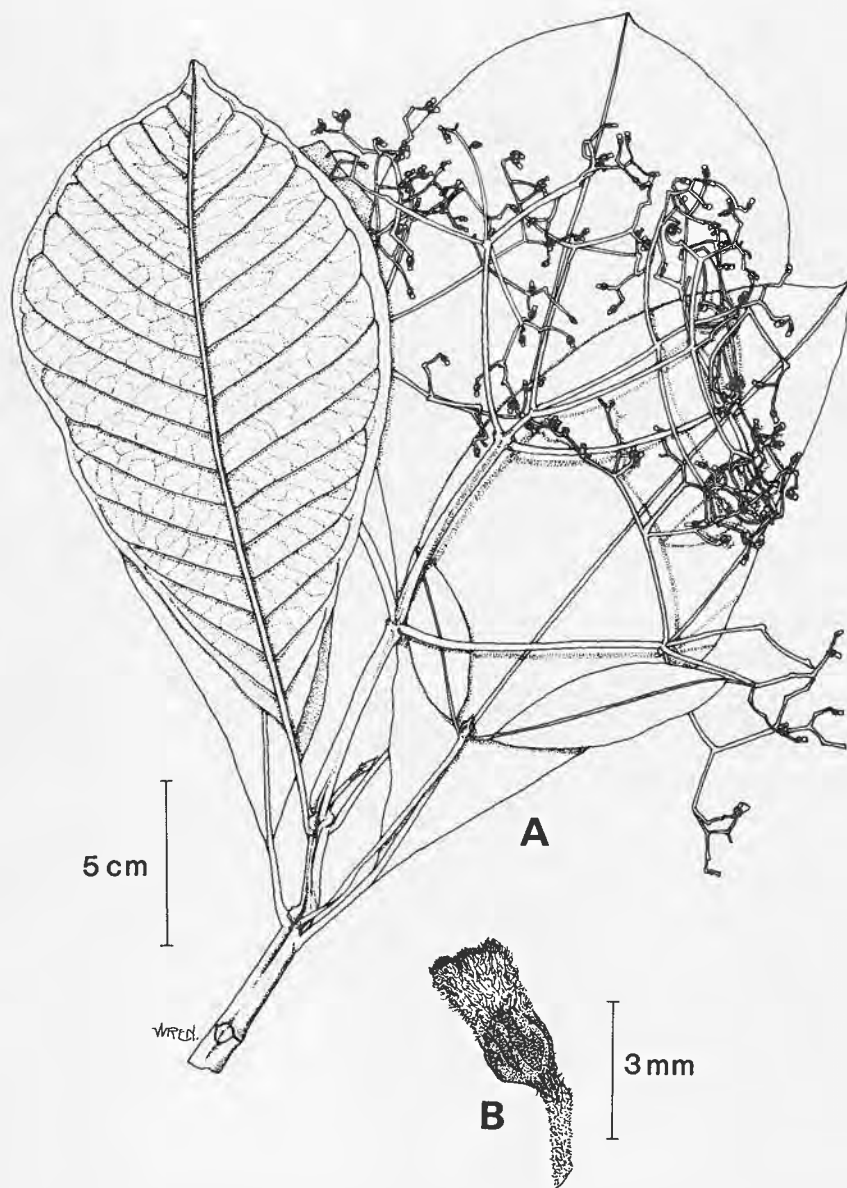


Fig. 131. *Psychotria womersleyi*. *Dobumaba* NGF 49109 (LAE, holotype): A, habit of fruiting branch; B, young fruit.

glabrous, strongly defined obovate, $6.5 \times 15-12 \times 25$ cm, lateral veins 10-15 per side, apex sharply and abruptly acuminate, base acuminate to attenuate. Inflorescence large, robust, to 22 cm long and as wide, the main axis stout and unbranched $\frac{1}{4}-\frac{1}{3}$ its length from base, 3-4 primary nodes with opposite or verticillate branching at each, the lateral axes with wide spreading branches, the ultimate branches with 3-4 cymules grouped and sessile on short, stout, pedunculi, all axes puberulent. Flowers 5-merous, dimorphic, sessile; hypanthium about 2 mm long; calyx about 1 mm long, tube well defined, lobes irregular acute to obtuse, equal in length to tube; corolla tube about 2 mm long, hairy within, lobes subulate, about equaling the tube, reflexed at anthesis; anthers about 1 mm long in thrum flowers. Fruit immature, color unknown, ovoid in general shape, puberulent, calyx tube prominent and persistent at crown. Pyrenes unridged, endosperm ruminant.

Other Specimens Examined. PNG. EH: nr Okapa, Womersley NGF 17660 (L, LAE).

Distribution. Apparently limited to the montane forests of Eastern Highlands Province between 1,500 and 1,800 m.

Distinguishing Features. Leaf blades obovate, large; inflorescence robust, stout, longer than the subtending leaves, 3-4 ultimate cymules grouped together and sessile on stout pedunculi.

Remarks. This is another species with, I believe, affinities to the *Psychotria micrococca* complex, although no information was provided by the collectors as to the color of the inflorescence or fruit. The taxon is named for John Womersley, who was Assistant Director of the Division of Botany, Office of Forests in Lae, PNG, for many years.

Psychotria yapaensis Sohmer, sp. nov. Fig. 132.—Type: Hoogland & Craven 10802 (LAE, holotype; L, LAE, isotypes), PNG: EAST SEPIK PROV: Ambunti Dist: along Yapa [Hunstein] Riv, in rain forest on a river flat, at ca. 160 m.

Frutices vel arbores parvae 1-2 m alti sunt, stipulis valvatis obovatis in dorso pubescentibus vel marginibus ciliatis apice valde fisso lobis acutis, petiolis 0.8-2.5 cm longis laminis $3.7 \times 8.5-5.5 \times 15.5$ cm coriaceis vel semicoriaceis obovato-ellipticis infra in nervis pilosis apice acuminato nervis lateralibus 10-12 in dimidio quoque, inflorescentia compressa usque ad 2 cm longis foliis sustentibus



Fig. 132. *Psychotria yapaensis*. Hoogland & Craven 10802 (LAE, holotype): A, habit with flowering branch; B, thrum flower at anthesis.

valde majoribus axi principali per partem basalem $\frac{1}{3}$ - $\frac{1}{2}$ eramoso (pedunculo saepe in stipulis velatis) nodis primariis 1-2 cum ramis verticillatis vel cum floribus sessilibus axibus omnibus pilosis, floribus 5-meris albis dimorphicis sessilibus, hypanthio et calyce 2 mm longis cum pilis brevibus rigidis, lobis irregularibus obtusis, corollis albis tubo 4 mm longo extra cum pilis brevibus rigidis, intra villosa ad faucem lobis lanceolato subulatis in flore reflexis vel rotatis usque ad 4 mm longis extra cum pilis brevibus rigidis, in floribus thrumaceis antheris ultra 1 mm longis, fructibus incognitis.

Shrubs or small trees 1-2 m tall. Stipules valvate, obovate, pubescent on back or margins ciliate, apex prominently cleft, the lobes acute. Leaves with petioles 0.8-2.5 cm long; blades coriaceous to semicoriaceous, pubescent (on veins below), obovate-elliptic, 3.7×8.5 - 5.5×15.5 cm, lateral veins 10-12 per side, apex acuminate, base acute. Inflorescence small, compressed, to 2 cm long, much smaller than the subtending leaves, 1 main axis unbranched $\frac{1}{3}$ - $\frac{1}{2}$ length from base (peduncle often included within stipules), 1-2 primary nodes with verticillate branching at each or with flowers directly, all axes pubescent. Flowers 5-merous, dimorphic, sessile; hypanthium and calyx together about 2 mm long, with short, stiff hairs, calyx lobes irregular and obtuse; corolla white, tube about 4 mm long, short, stiff hairs without, villous within near throat, lobes lanceolate-subulate, about 4 mm long (equaling tube), short, stiff hairs on outer surface; reflexed or rotate at anthesis, anthers of thrum flowers a little over 1 mm long. Fruit unknown but presumed red at maturity.

Other Specimens Examined. IJ. Steenkool to Tembo Eni, *van Royen* 3453 (CANB, L).

Distribution. Irian Jaya and the East Sepik Province of Papua New Guinea in lowland rain forests.

Distinguishing Features. Leaf blades obovate-elliptic, bases acute; stipules to 2.5 cm long and cleft; inflorescence small and compressed.

Remarks. The characteristics of the inflorescence, relatively large flowers, and the obovate-elliptic, pubescent-tomentose leaves help to define this taxon.

Species Insufficiently Known

Psychotria condensata Valetton, in Lorentz, *Nova Guinea* 8: 491 (1911). Fig. 133.—
Type: *Wichmann* 34=20 (*Atasrip* 569=568) (L, lectotype, here designated; BO, isolectotype), IRIAN JAYA: Koromoi & Kurani rivers.

Grumilea condensata Valeton, Bull. Dep. Agric. Inde. Nearl. X. 65 (1907).—Type: Toko 161208 (not seen).

This taxon is known only from the collections cited by its author. Why Valeton, who first described it in 1907 as *Grumilea condensata*, redescribed it 4 years later without a mention of the earlier work or first collection cited is a great mystery to me, unless he actually considered them 2 different taxa. The large, condensed nature of the inflorescence and the flowers with subtending bracts put it into that group often designated as *Cephaëlis*.

The collections cited by Valeton (1911) are cited as Wichmann collections and the specimens at Leiden have labels clearly identifying them as material collected on Wichmann's 1903 expedition. The numbers also match the Valeton citations (one "20=34," the other "34=20"), these both appearing on the upper left-hand corners of the label. However, the label more definitely identifies Mr. Atasrip, an Indonesian who accompanied Wichmann, as the collector of this material. His numbers are on the lower left-hand corners of each label, reading (respectively to the Wichmann numbers) "568=569" and "569=568." I suspect that this cryptic code merely showed that Wichmann, or Atasrip, or perhaps a 3rd party, recognized both collections as belonging to the same taxon. I have cited the Wichmann 34=20 (Atasrip 569=568) collection as the lectotype, as it contains a nearly complete inflorescence; the other collection is sterile.

Other Specimens Examined. IJ. Koromai & Kurani rivers, *Wichmann* 20=34 (=Atasrip 568=569) (L, syntype; BO, isosyntype).

Psychotria hellwigiensis Valeton, sp. nov. Fig. 134.—Type: *Pulle* 766 (L, holotype; BO, isotype), IRIAN JAYA: on the SW approach to Hellwig Mt, at ca. 1,800 m, 18 Dec 1912.

Frutex glaber. Semuli florentes validi. Stipulae caducae, ad gemmam terminalem tantum adsunt. Late ovatae obtusissimae, dorso incrassatae et subcarinatae margine lato subcoriaceo. Cicatrices annulares villosae conspicuae, petiolum haud amplectentes sed in axillam productae et basi petioli superne adnatae. Folia petiolata late elliptica vel suborbicularia, late obtuse apiculata basi acuta, subcoriacea, in sicco rigida, rugosa margine sub-incurva, fusco-olivacea (et magis minusve rubescentia). Nervi laterales arcuato-patuli et prope marginem adscendentes, utrinque 8-9, venis costalibus vulgo subaequidem interpositis, subtus prominuli supra inconspicui. Inflorescentia sessilis brevis umbellata, foliis caulibus vel diminutis suffulta, ebracteata ad ramificationes articulata, glabra, petiolo

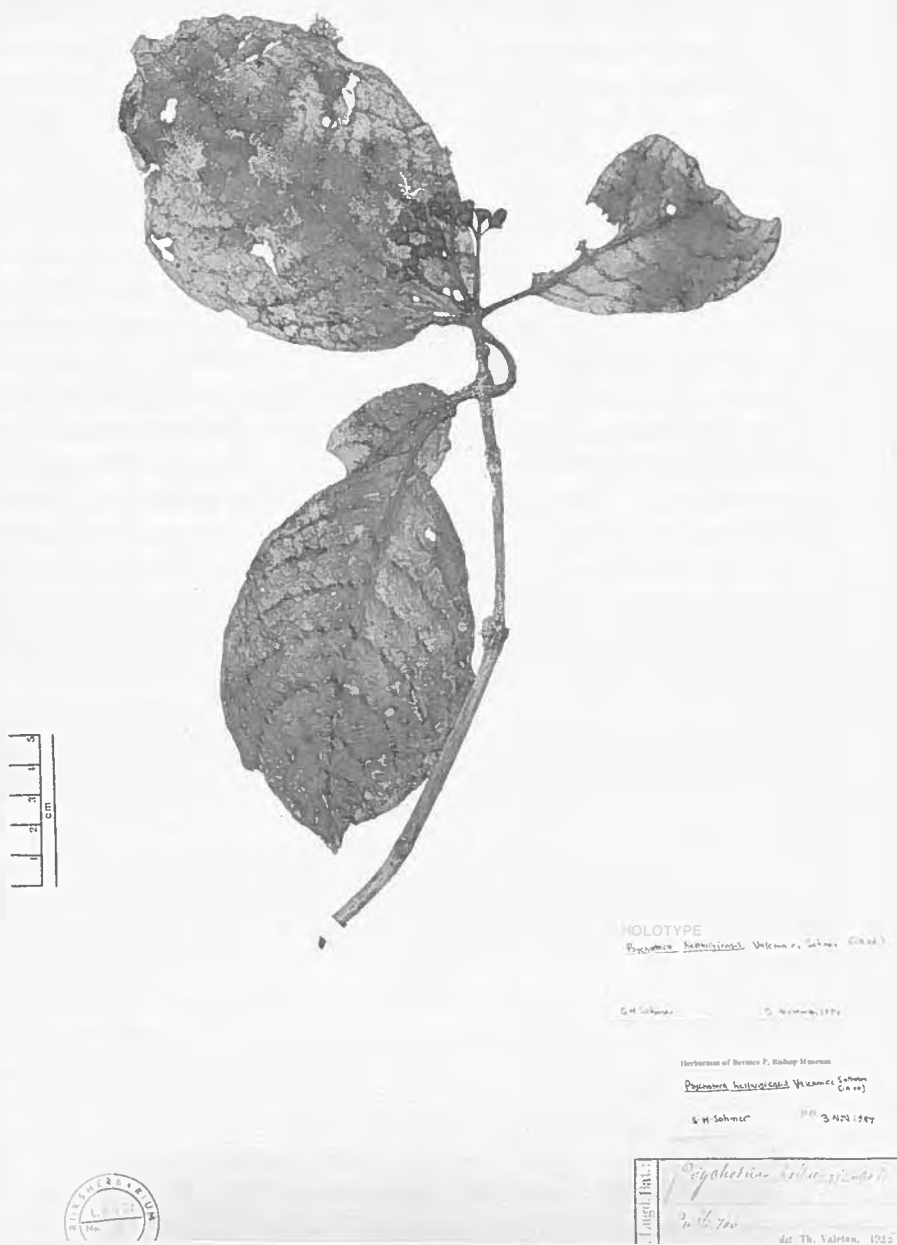


Fig. 134. *Psychotria hellwigiensis*. Pulle 766 (L, holotype).

saepe duplo longioro. Bracteae obsoletae. Pedicelli articulati. Rami catuli 4-verticillati, pedunculati apice 3-pauciflori, rhachis apice bis trichotoma. Flores nondum aperti pedicellati, inter majores. Calyx late cyathiformis, integer, corolla in alabastro obovoidea, apice rotundata, tubus nunc brevissimus (nondum evolutus) calyce brevior. Lobi late oblongi, apice uncinulati, tubo longiores, "demum reflexi." Antherae sessiles in apice tubi, fasciculis densis pilorum alternantibus. Fructus juvenilis; albumen lobatum.

A 3-m shrub; the flowering branches are less than 6 mm thick, the internodes somewhat compressed, 70–75 mm long. Leaves 12–14 × 6–9 cm, the petiole about 3 cm long. The panicle branches are about 4 cm long and end in at most 3-flowered cymes. Flowers with pedicels 3–6 mm long; calyx 2 mm long, 4 mm broad; corolla tube only 1 mm long, the lobes in the nearly opened flowers 5 mm long, 1–1.5 mm wide. Fruit immature, the pyrenes not developed.

Remarks. The Latin description is taken essentially verbatim from Valeton's unpublished manuscript. The English description is extracted and translated from his notes. I have not seen anything that I can clearly match with the type collection designated by Valeton. However, the type specimen is distinct and I have little doubt that it represents a new taxon of *Psychotria*. For the time being, this taxon remains a species insufficiently known.

Psychotria ihuensis Merrill & Perry, J. Arnold Arbor. 27: 207 (1946). Fig. 135.—

Type: Brass 962 (A, holotype), PNG: GULF PROV: Kerema Dist: Ihu, Vailala Riv.

Psychotria polyneura sensu Rehder in J. Arnold Arbor. 14: 65 (1933). Based on same specimen.

I have been unable to satisfactorily match the holotype with anything I have yet seen for New Guinea. I have also been able to examine the type specimen for *P. polyneura* Valeton, the taxon to which this specimen was referred by Rehder (op. cit.). I do not agree with Rehder. However, now that I have been able to examine the type of *P. wichmannii* Valeton (= *P. ochnidiophora* Wernham), the taxon that Merrill & Perry (1946) believed most similar, I can agree that there is some resemblance, but the small inflorescence makes *P. ihuensis* distinct from the latter taxon or any other I have seen with similar leaf venation.

Psychotria kochii Valeton, in Lorentz, Nova Guinea 8: 489 (1911). Fig. 136.—

Type: Koch 9 (L, lectotype, here designated), IRIAN JAYA: Etna Bay.

BULLETIN 1: BOTANY

Flora of New Guinea.

Collected for the Arnold Arboretum by L. J. Brass.

Plant No.

Botanical Name

Common Name

Locality *Flora Indole, Papua*

Altitude Date *1916/11/1*

Habit *Forest soft wooded land*

Trunk and Bark

Leaves *Remained fleshy green
permanently in some specimens. Flange of leaf stipules*

Flowers

Fruit

General *9. The same form.*

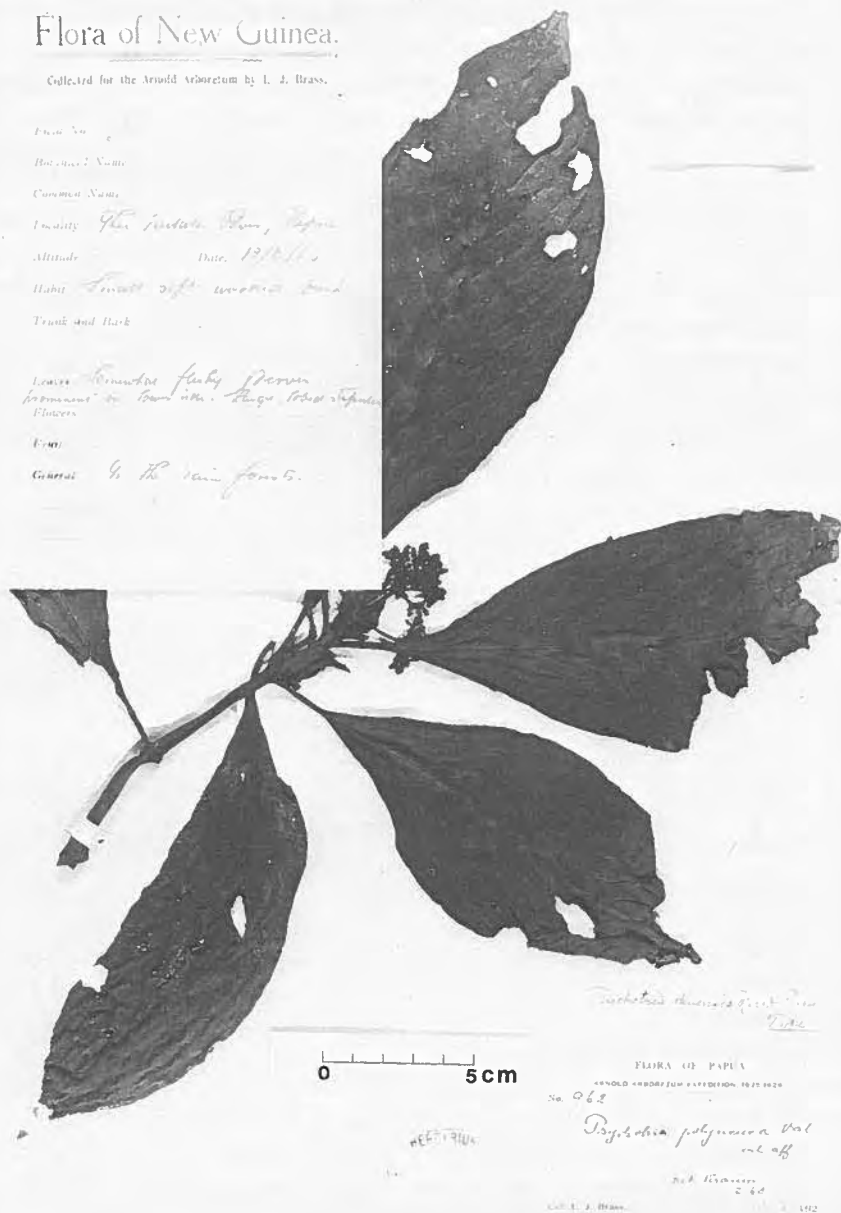


Fig. 135. *Psychotria ihuensis*. Brass 962 (A, holotype).

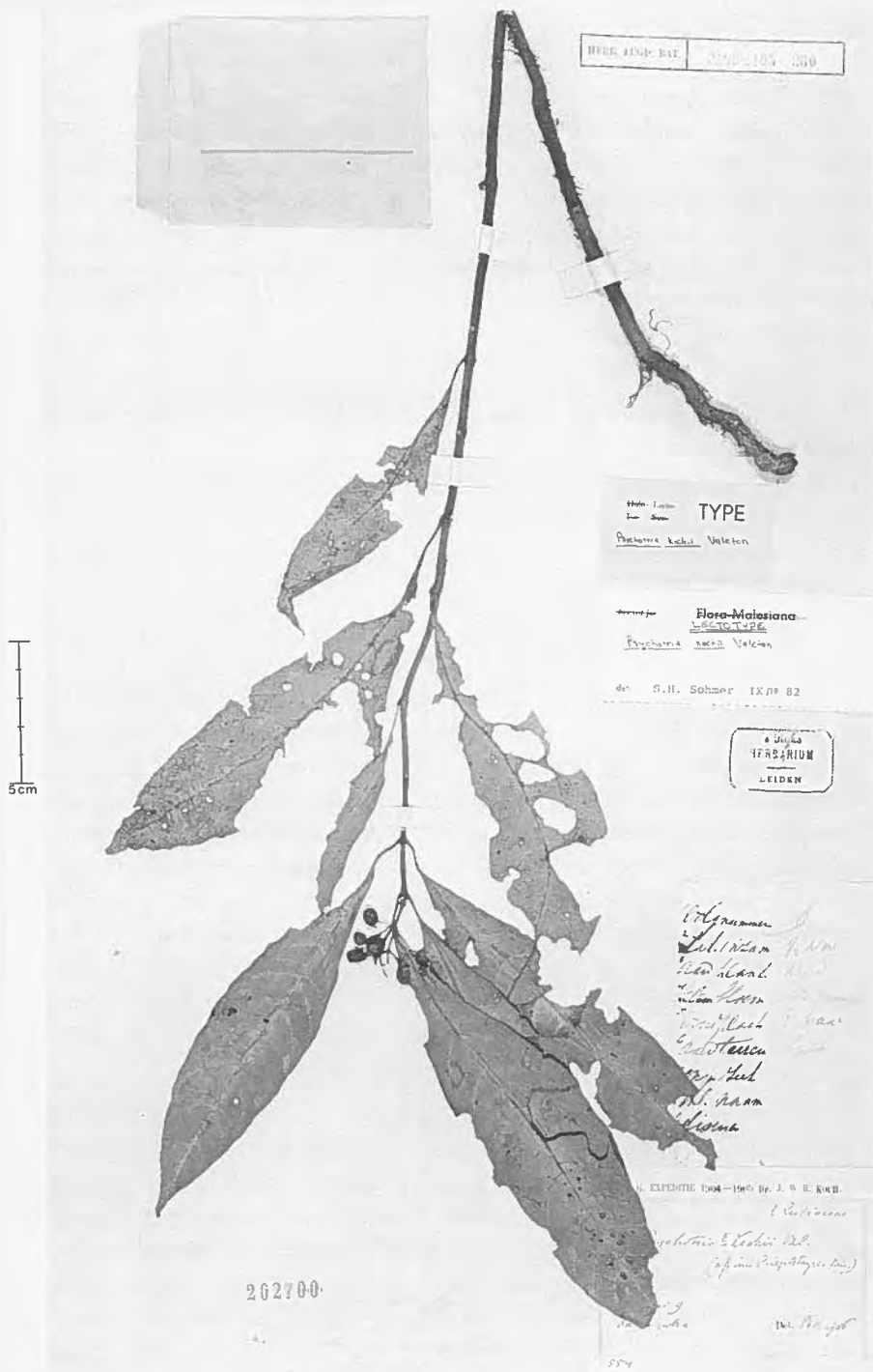


Fig. 136. *Psychotria kochii*. Koch 9 (L, lectotype).

This taxon has not been re-collected or has not been recognized as such. The specimen that Valetton cited is still extant at Leiden. If it were definitely known that no duplicates ever existed, this specimen could be designated as holotype. Valetton considered this species to be allied to *P. leptothyrsa* in the original publication, but in the unpublished manuscript that I have seen he considers its affinities to lie with another taxon named in the manuscript. It is evident that he also had not seen more material since the original publication. He deals with the taxon in only 2 sentences.

Other Specimens Examined. New Guinea, without further data, Koch s.n. (BO).

Psychotria misolensis Valetton, sp. nov. Fig. 137.—Type: Lam 494 (=699) (BO, holotype; L, isotype), IRIAN JAYA: Mamberamo Riv: Pionier Bivouac.

Arbor parva glaberrima. (Apex ramuli florentis.) Internodia crassa decussatim compressa 30 mm longa, 8 mm crassa. Stipulae magnae (20 mm longa 10 lata) ellipticae ima basi connatae. Folia magna petiolata obovato-oblonga acute sub-acuminata basi attenuata, coriacea, polyneura nervis (nunc ad 25 utrinque), patulis arcuato-ascendentibus, venis conspicuis clathrato-reticulatis. Thyrsus brevis validus, pyramidalis brevissime pedunculatus, ramis subverticillatis brevibus crassis, floribus subsessilibus ad apices glomeratis. Calyx patelliformis integer. Corollae carnosulae tubus elongatus leviter inflatus intus dense barbatus, lobi patentes lanceolati uncinati tubo multo breviores. Drupae ped. cellatae obovatus, in sicco argute 5-costatae; semen 5-angulum ventre et dorso alte ruminatu.

Small shrub 1–1.5 m tall. The internodes compressed. Leaves elliptic to obovate, to 13 × 28 cm, lateral veins to 20 per side.

Remarks. The Latin description is taken verbatim from Valetton's unpublished manuscript, and the English description is distilled from the same manuscript. This taxon, like *P. hellwigiensis*, was never published by Valetton. He prepared a manuscript in which he was revising his own understanding of the genus in the then Dutch East Indies and New Guinea, but he passed away before bringing it to publication. I have not seen any other specimen of this taxon, but the type looks similar to that of *P. utakwensis* Wernham, which has also been placed in this section. Until more material becomes available of these taxa it is probably best to treat them as distinct.

SOHMER: NEW GUINEA AREA PSYCHOTRIA

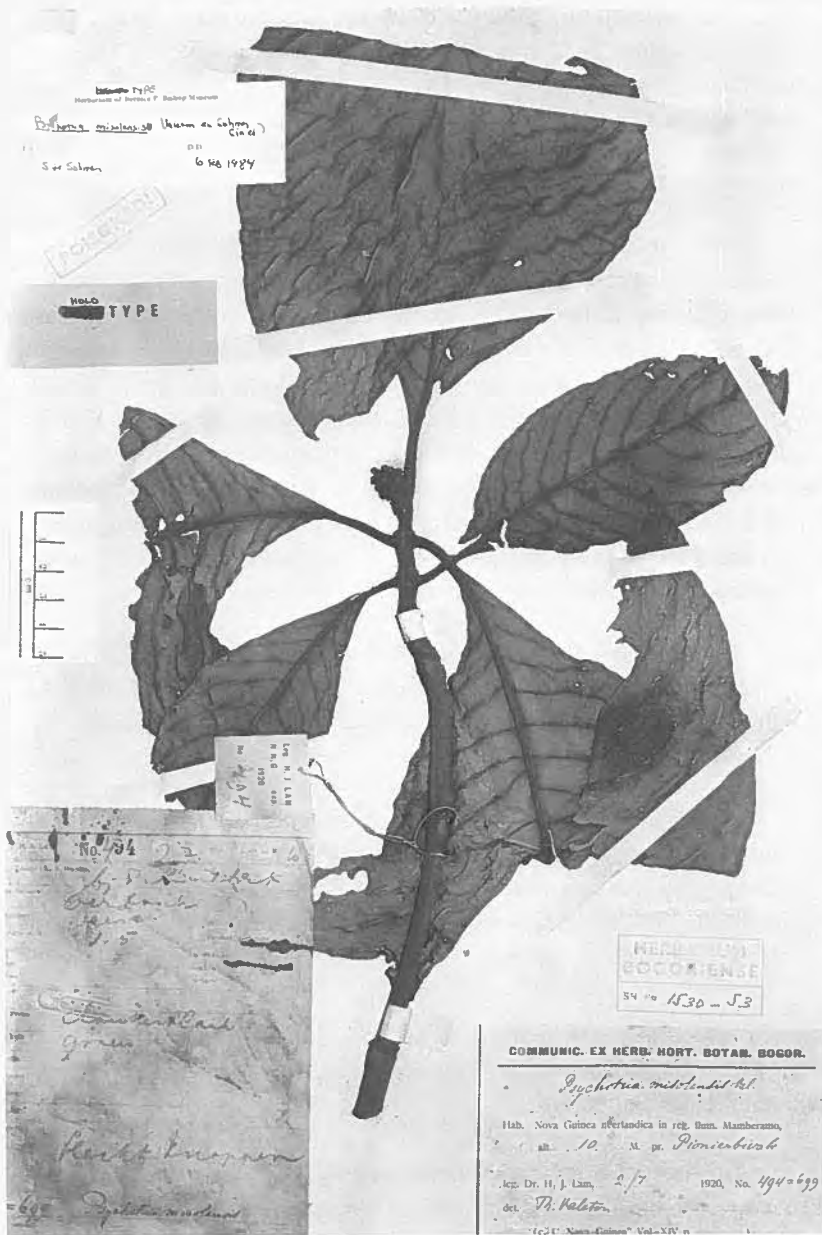


Fig. 137. *Psychotria misolensis*. Lam 494 (=699) (BO, holotype).

Psychotria montana Blume, Bijdr. Fl. Ned. Ind. 16: 960 (1826). Fig. 138.—Type: Blume Herbarium (L, lectotype, here designated—sheet #908, 202–203), INDONESIA: JAVA.

Psychotria expansa Blume, Bijdr. Fl. Ned. Ind. 16: 963 (1826).—Type: Blume Herbarium (L, lectotype, here designated—sheet #901, 202–2). INDONESIA: JAVA.

Chasalia expansa (Blume) Miquel, Fl. Ind. Bat., p. 280 (1856).

After spending time at the Rijksherbarium in Leiden and examining the specimens of *Psychotria* from the Malesian area, I was able to designate type specimens for many Blume and Miquel names. This made the comparison of some taxa a little easier. As a result of this overview of non-Papuan *Psychotria* taxa, I was able to recognize several *Psychotria* taxa with widespread distributions and with representation in New Guinea. Elements of these taxa had acquired different names in different areas. There are several collections, principally from the western part of New Guinea, that strongly resemble the taxon recognized by Blume as *P. montana*. I am citing them below but I am not providing a description for the species, for if these specimens do belong here, they would only show a small portion of the total variation present in the taxon.

Other Specimens Examined. IJ. Btwn Amuluk and Angguruk, *Sauveur & Sinke* 2671 (L); Albatros Bivouac, *Docters van Leeuwen* 9350 (BO, L), 9504 (BO); Tor-rivier, *Gjellerup* 727 (BO, L). PNG. 20 km SSW of Kutubu, nr Waro airstrip, *Jacobs s.n.* (L).

Remarks. *Psychotria montana* seems similar to *P. leptothyrsa*. Most of the individuals of the former can be distinguished by the venation pattern, which contrasts with the pattern of most individuals recognized as *P. leptothyrsa*. There are also technical characteristics involving the flowers that distinguish these taxa in New Guinea.

Psychotria montana var. *gracillima* Wernham, J. Bot. (London) 56: 135 (1918). Fig. 139.—Type: *Forbes* 37 (BM, lectotype, here designated). PNG: CENTRAL PROV: Sogeri Dist.

I suspect that this taxon belongs with the *P. leptothyrsa* complex, but until that species and the species to which var. *gracillima* is supposed to belong can be extensively studied, further comment is merely speculative.

Psychotria papuana (Wernham) St. John, Occas. Pap. Bernice P. Bishop Mus. 141: 148 (1936). Fig. 140.

SOHMER: NEW GUINEA AREA PSYCHOTRIA

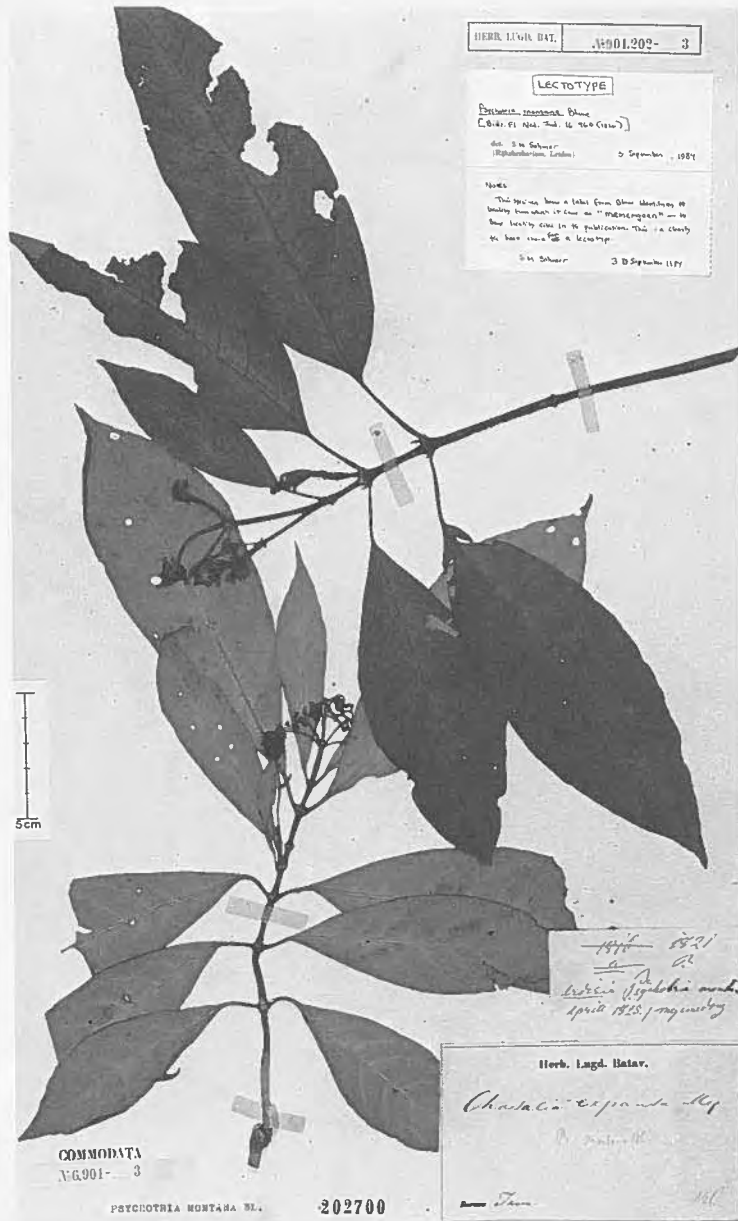


Fig. 138. *Psychotria montana*. Blume Herbarium (L, lectotype).



Fig. 139. *Psychotria montana* var. *gracillima*. Forbes 37 (BM, lectotype).

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Fig. 140. *Psychotria papuana*. Forbes 442 (BM, lectotype).

Gouldia papuana Wernham, J. Bot. 56: 129 (1918).—Type: *Forbes 442* (BM, lectotype, here designated; L, isolectotype), PNG: CENTRAL PROV: Sogeri Dist, without further data.

Small trees to 12 m. Stipules valvate, glabrous, ovate, 0.5–1 cm long. Leaves with petioles 7–15 mm long; blades coriaceous, glabrous, elliptic, 3×6 – 7×14 cm, lateral veins 8–14 per side, apex obtuse or acute, often with a short acuminate tip, base obtuse. Inflorescence with 1 main axis 6–10 cm long, unbranched $\frac{1}{3}$ – $\frac{2}{3}$ from base, 2–4 primary nodes with verticillate branching at each. Flowers unknown. Fruit red at maturity, obovoid-turbinate, 6–7 mm long and nearly as wide (not including tapering foot), somewhat diplococcus, pedicel pronounced tapering. Pyrenes with irregular ribs on back, nearly smooth, with a short, blunt foot, endosperm ruminant.

Distribution. Lower elevation rain forests in Gulf and Central provinces of Papua New Guinea.

Distinguishing Features. Stipules valvate; fruit red, obovoid-turbinate, somewhat diplococcus.

Remarks. I have not been able to place this taxon properly with the material available. The description is based largely on the original published description and my examination of the type collection.

Psychotria polita Valetton, Bot. Jahrb. 61: 95 (1927). Fig. 141.—Type: *Ledermann 9311* (L, lectotype, here designated), PNG: Etappenberg.

I have been able to find an extant specimen of the collection cited by Valetton at Leiden. It is in very good condition and, as far as is known at the time of writing, represents the only collection of this taxon. Additional material is needed for an understanding of the morphology of the taxon.

Distinguishing Features. Leaves narrow, lanceolate, the lateral veins quite conspicuous below and pushing out irregularly along the margins to give the leaf a crinkled appearance, ends acuminate; the inflorescence delicate with extremely thin peduncle and branches.

I have compared the lectotype specimen here designated and that of *P. rostrata* Blume, and I believe that this species and *P. rostrata* are identical. I have refrained from placing *P. polita* into synonymy, however, as I have not yet examined material

SOHMER: NEW GUINEA AREA PSYCHOTRIA



Fig. 141. *Psychotria polita*. Ledermann 9311 (L, lectotype).

that is available for *P. rostrata* from Java and other parts of the Indonesian Archipelago.

Psychotria praecox Valeton, sp. nov. Fig. 142.—Type: *Gjellerup* 712 (L, holotype; BO, isotype), IRIAN JAYA: "North New Guinea," middle reaches of the Torivier Riv, in primary forest from a 5 m high tree.

Arbor quinquemetrals glaber: ramuli cortice molli rufo vestiti internodiis incrassatis. Stipulae, ad gemmas tantum, *parvae ovatae* obtusae coriaceae (circ. 6 mm × 3) *medio costatae*, cicatrice crassa ferri equini forma. Folia *obcuneata* in petiolum mediocrem attenuata apice late acutiuscule acuminata (100–185 × 40—90 × 8–12 mm), subcoriacea (pergamacea) siccando rugosa, rufo-badia. Nervi utrinque 8–10 subtus prominuli. Paniculae in apice ramulorum annuorum praecoces sessiles umbellatae, rachibus et ramis tenuibus, squarrosis, parvae densiflorae. Flores pedicellati nondum aperti, non articulati, bracteis et bracteolis subnullis nunc 8 mm longae. Ovarium cupulae, calyx annularis, integer, discus semiglobosus, longe exsertus, corolla hypocraterimorpha, medio constricta, in sicco subcoriacea intus tota villosula, lobis tubo paullum brevioribus.

Valeton (unpubl.) believed that this species was related to *P. malayana* because of the horseshoe-like base of the stipules, although there are other taxa with this thickening at the base of the stipules. The specimens at L and BO have been somewhat abused over the years, but the former institution has a photograph, apparently taken by Valeton, of the specimen there.

This taxon is another recognized by Valeton in manuscript form but never published. I am herewith providing his Latin description in an essentially unaltered form.

Psychotria schultzei Valeton, Bot. Jahrb. 61: 78 (1927).—Type: *Schultze* 26 (L, lectotype, here designated—seen as photograph), PNG: "Lager Hochmoos, 65 km südwests der Tamimundung," Jul 1910.

I have seen this specimen only as a photograph of what I am assuming is the *Schultze* 26 collection cited by Valeton. Valeton had photographs made of a number of type specimens, including specimens cited in an unpublished manuscript draft. Those for which material was available at Leiden are mostly still present there, but those which were made from material at Berlin are now probably the only representations of the types. Unfortunately, many of these photographs do not show the label, only a stenciled name and ruler. I cannot be absolutely certain that the photograph I have designated as lectotype represents

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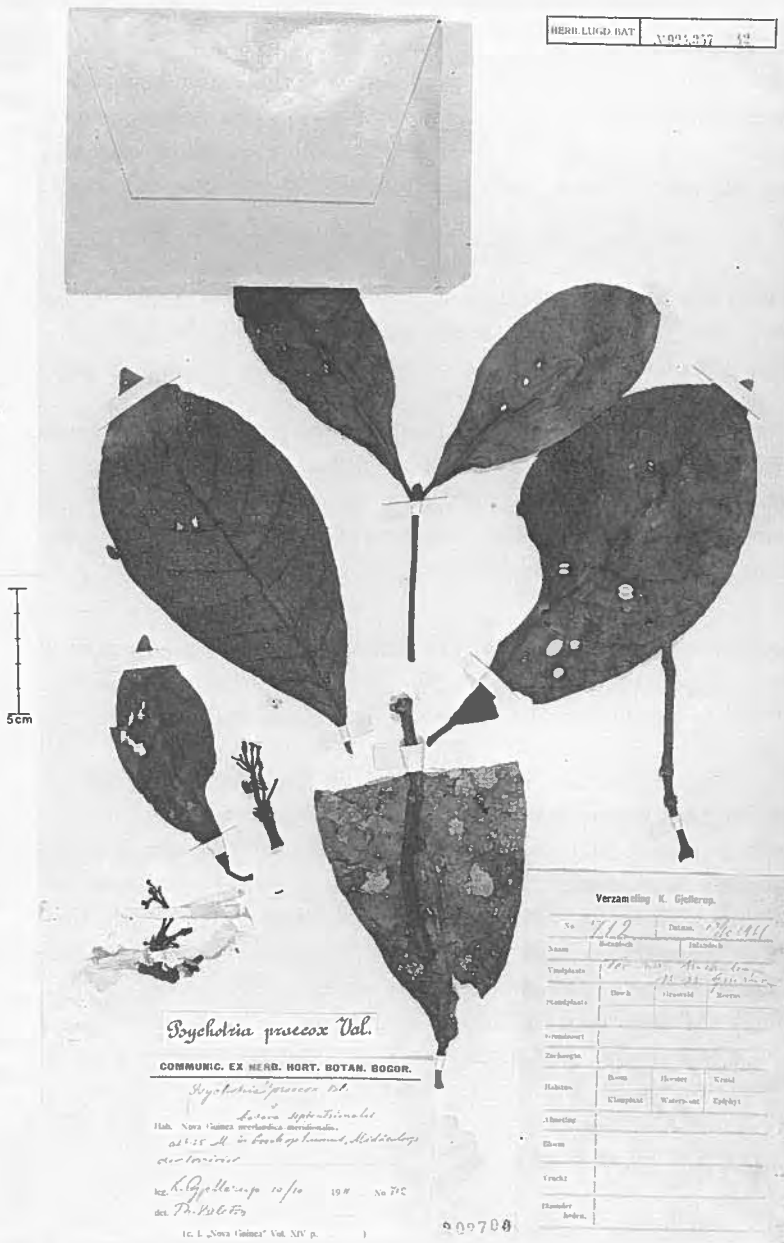


Fig. 142. *Psychotria praecox*. Gjellerup 712 (L, holotype).

a photograph of the specimen cited by Valeton, although the chances are very small that another specimen is represented.

Valeton noted that the pyrene wall was very thick and spongy and the seed had an endosperm that was not ruminant. I cannot place this specimen with any taxon of *Psychotria* I know for New Guinea, but I am certain that this is due to the lack of material, rather than that it represents a unique and rarely occurring species.

Psychotria sogerensis Wernham, J. Bot. (London) 56: 135 (1918). Fig. 143.—Type: Forbes 465 (BM, lectotype, here designated), PNG: CENTRAL PROV: Sogeri Dist, without further data.

This taxon is represented only by the type specimen. It is insufficiently known. I would have placed it with *P. apiculata* if a submarginal costa was present. The resemblance of this taxon to *P. versteegii* Deb & Gang. (= *P. polyneura* Valeton) is close. If *P. sogerensis* is associated with a species of ant, it would be appropriate to consider combining it with *P. versteegii*.

Psychotria utakwensis Wernham, Trans. Linnean Soc. (London) 9: 76 (1916). Fig. 144.—Type: Boden Kloss s.n., Nov 1912 (BM, lectotype, here designated), IRIAN JAYA: Utakwa Riv to Mt Carstensz: "Canoe Camp 2," ca. 50 m.

Shrubs or trees(?), height unknown. Stipules valvate, thick in texture, to 2 cm long(?), ovate or broadly-ovate. Leaves with petioles 3–5 cm long; blades semicoriaceous to coriaceous, glabrous, prominently obovate, 6 × 11–15 × 25 cm, lateral veins prominent, 12–15 per side, puberulent below, apex round, often with a short, blunt tip, base attenuate. Inflorescence apparently trichotomous from base, the main axis and the 2 smaller, but similar, lateral ones to 5 cm long, 3–5 flowers. Flowers dimorphic(?), on pedicels 5–15 mm long; calyx tube about 3 mm high and broad; corolla tube 7–10 mm long, glabrous without, hairy within at throat, lobes narrowly oblong, suberect, 6–7 mm long; anthers 6 mm at anthesis. Fruit presumed red or black at maturity, obovoid-globose, about 11 mm long (not including persistent and prominent calyx tube) and 7–8 mm wide. Pyrenes unknown (only 1 fruit known).

Distribution. Apparently limited to certain areas of Irian Jaya from sea level to very low montane forests.

Distinguishing Features. Leaves large and obovate with prominent venation; inflorescence small, trichotomous, sparsely flowered; corolla tube thick,

SOHMER: NEW GUINEA AREA *PSYCHOTRIA*

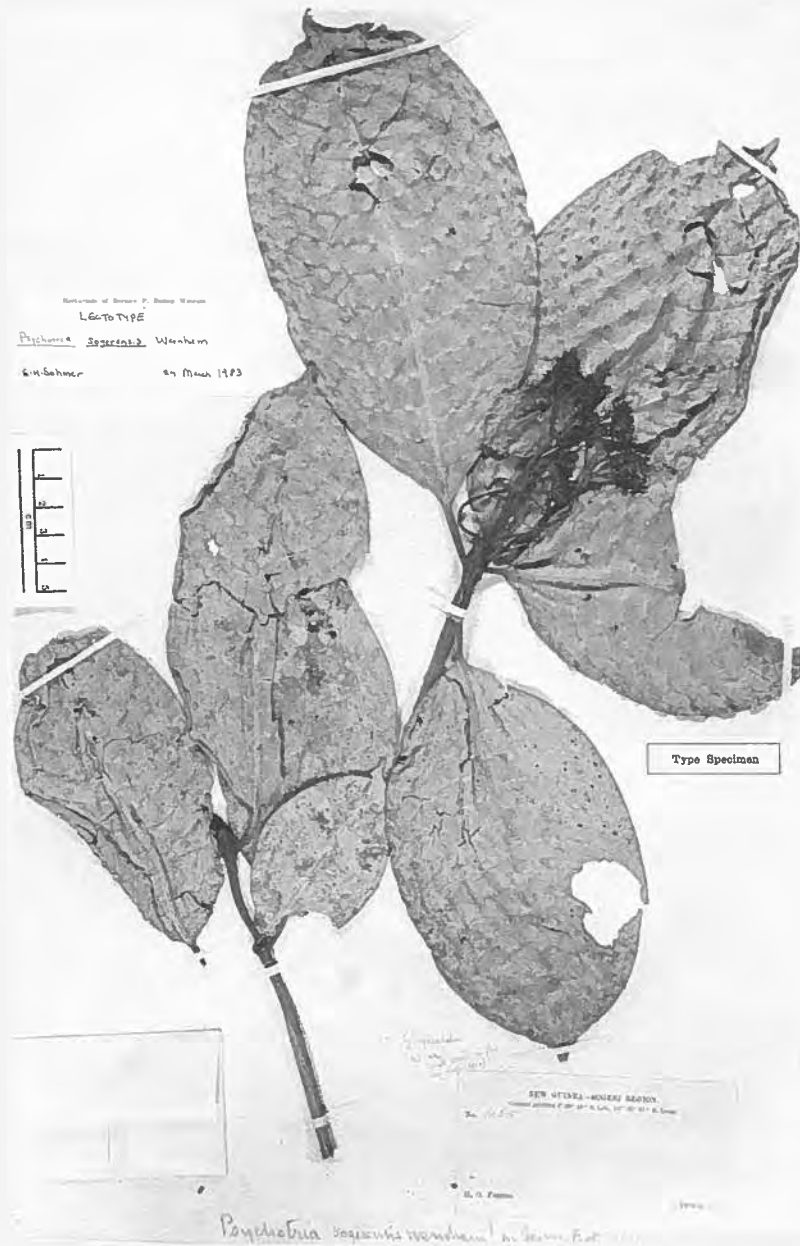


Fig. 143. *Psychotria sogerensis*. Forbes 465 (BM, lectotype).

BULLETIN 1: BOTANY



Fig. 144. *Psychotria utakwensis*. Boden & Kloss s.n. (BM, lectotype).

7–10 mm long; fruit large, 7–11 mm long, crowned by prominent, persistent, calyx tube.

Remarks. The type collection was made in the vicinity of what was called “Canoe Camp,” which was about 56 km (35 mi) up the Setakwa Riv from its confluence with the Utakwa Riv near the Papua New Guinea border. The camp was apparently situated at the margin between the low, marshy, coastal plain and the foothills leading eventually to Mt Carstensz. This taxon resembles *P. misolensis*.

Species Incognitae

The species in this section are those for which no type material has been seen and which cannot be placed into prevailing species concepts because of the incomplete nature of the published descriptions. Of the 14 taxa in this section, 10 are described by Valeton based upon Ledermann collections and 2 are described by Lauterbach & Schumann. Were type material available, there is a very good possibility that nearly all could be matched with presently held species concepts. All of the missing type material would have been in Berlin during the Second World War and is presumed destroyed. It is doubtful that any of this material will ever be seen again.

The list of unknown species would have been nearly 3 times as long had I not had the opportunity to spend time in L and to have had access to collections at BM, K, and other institutions.

Psychotria calycina Valeton, Bot. Jahrb. 61: 83 (1927).—Type: *Ledermann 12655* (not seen), PNG: New Guinea, without further data.

Valeton referred to the habit as “Herba squarrosa metralis” in his description, and a “. . . , sparriges Kraut, 1 m hoch,” He considered this species similar to *P. versteegii*.

Psychotria camptodroma Merrill & Perry, J. Arnold Arbor. 27: 206 (1946).—Type: *Brass 5102* (not seen), PNG: Mt Tafa, bush in valley forest, at 2,400 m, Sep 1933.

Merrill & Perry described a shrub with ultimate branches villous, stipules about 2 cm long, infructescence 6 cm long with 2–2.5 cm long peduncle

and relatively large corolla tube 9 mm long. That the plant must have had pin flowers is evidenced by the further information that the stamens were included within the corolla tube and that the style was 9 mm long. The fruit was reported to be 7 mm in diameter and to have a ruminant endosperm. The authors considered their species to be similar to *P. malacorrhax* (Lauterbach & Schumann) Valeton.

I have no concept of what the relationship of this taxon is and where it might properly belong in this revision.

Psychotria crebrinervis Valeton, Bot. Jahrb. 61: 102 (1927).—Type: *Ledermann* 10332 (not seen), PNG: "Lordberg," at ca. 1,000 m, 12 Dec 1912.

Valeton described this species as a glabrous herb about 1 m tall. The taxon is said to have 21 lateral veins per side and Valeton thereby considered it similar to *P. multcostata*. However, he stated that the reported herbaceous habit and the fact that the flowers are condensed on the short branches of the inflorescence distinguish it from *P. multcostata*.

Psychotria fonticola Valeton, Bot. Jahrb. 61: 85 (1927).—Type: *Ledermann* 10036 (not seen), PNG: "Lordberg," at ca. 1,000 m, 4 Dec 1912.

This taxon is from a Ledermann collection from "Lordberg," as are several other species described by Valeton. It was reported as a procumbent herb 30–40 cm high whose white leaf venation contrasts against the rest of the leaf blade. The inflorescence was described as being about 2.5 cm long and as being tightly surrounded by leaflike bracts and stipules at first, but eventually splitting free and possessing about 5 glomerules of flowers. The description is somewhat reminiscent of the members of the genus *Ophiorrhiza* L.

Psychotria lasianthifolia Valeton, Bot. Jahrb. 61: 86 (1927).—Type: *Ledermann* 10031 (not seen), PNG: "Lordberg," in damp forests at ca. 1,000 m, 12 Dec 1912.

I suspect that this taxon, along with several others described from "Lordberg," does not belong in *Psychotria*. With the absence of material, however, we may never be able to determine this. It was reported to be a semicreeping herb 1–1.5 m tall, with white fruit, and membranaceous, oblong, leaf blades with whitish pubescence beneath and cleft stipules with filiform lobes.

Psychotria malacorrhax (Lauterbach & Schumann) Valeton, Bot. Jahrb. 61: 88 (1927).

Grumilea malacorrhax Lauterbach & Schumann, Fl. Deutsch. Schützgeb. Südsee, p. 582 (1901).—Type: *Lauterbach 1053 & 1121* cited, PNG: MADANG PROV: Gogol Riv, upper reaches, primary forest, Nov 1980.

This taxon is described as a shrub or small tree that may reach 10 m in height and that possesses semicoriaceous leaf blades 7–14 cm long with soft, fleshy fruit over 1 cm long. It would probably be easy enough to place it with one of the species treated in this revision if any material were available, but it is not possible to do so with the description alone. Valeton considered this species similar to *P. keyensis* Warburg, which is not from New Guinea.

Psychotria muscicola Valeton, Bot. Jahrb. 61: 92 (1927).—Type: *Ledermann 11588* (not seen), PNG: Schraderberg, at 2,070 m, 26 May 1913.

This taxon, like several others collected by Ledermann from more-or-less the same locality, is described as a sparse herb 1–1.5 m tall with small stipules 8 mm long, leaf blades 5–11 cm long, and globose, white fruit 3–4 mm in diameter with ruminant endosperm.

It could be something other than a member of the genus *Psychotria*. The description of this taxon as a herb is particularly suspicious, but without type material to examine, nothing further can be determined.

Psychotria nana Valeton, Bot. Jahrb. 61: 93 (1927).—Type: *Ledermann 11892* (not seen), PNG: "Schraderberg," June 1913.

This glabrous herb with stipules 2 cm long fused at the margins, leaf blades 13–17 cm long with 16–18 lateral veins per side, and pedunculate, pyramidiform, paniculate inflorescences longer than the leaves reminded Valeton of *P. hollandiae* and *P. versteegii*. The data available to him stated that the plant was a 1 m tall herb. I suspect that the label data were incorrect and that this was a shrub or small tree. If so, then it is very likely that one of the species presently recognized is probably synonymous. Without material we will never know for certain.

Psychotria(?) nouhuysii Valeton, in Lorentz, Nova Guinea 8: 494 (1911).—Type: *von Römer 620* (not seen). IJ: SW New Guinea: "Noord-Fluss."

This shrub with distichously arranged leaves was suspected by Valeton of being a member of the genus *Amaracarpus*. I also suspect it may be, but without reference to type material, it will always remain somewhat of an open question as to this taxon's true relationship.

Psychotria pedicellata Valeton, Bot. Jahrb. 61: 94 (1927).—Type: *Ledermann* 8550 (not seen), PNG: NE New Guinea, without further data, 5 Sept 1912.

Valeton believed that this 2–3 m glabrous shrub with membranaceous leaf blades 20–26 cm long, “sessile” trichotomous inflorescence, and flowers with pedicels 5–10 mm long was clearly related to *P. leptothyrsa* Miquel.

Psychotria rugosa Valeton, Bot. Jahrb. 61: 97 (1927).—Type: *Ledermann* 13792 (not seen), PNG: NE New Guinea: “Felsspitze,” 10 Aug 1913.

This is another taxon Valeton believed related to *P. leptothyrsa* and distinguished therefrom by the less variable elliptic, gray-green leaves with a prominent, whitish venation pattern below and impressed, sharply bent lateral veins above. He described this taxon as a small glabrous shrub with minute, caducous stipules with papery, rugose leaf blades with 7–11 lateral nerves per side, and with a long-pedunculate inflorescence longer than the leaves. I suspect that it is most likely that this taxon is a *P. leptothyrsa* variant.

Psychotria schraderbergiensis Valeton, Bot. Jahrb. 61: 98 (1927).—Type: *Ledermann* 11753, 11964, 12218 cited (not seen), PNG: NE New Guinea: “Schraderberg,” at 2,070 m, May–June 1913.

This taxon, described as a small, glabrous shrub with slender flowering branches, minute stipules, rigidly membranaceous blades with 4–6 lateral veins per side, a few-flowered cymose inflorescence with a simple, short peduncle and globose fruit with ruminant endosperm, was thought by Valeton to bear a strong resemblance to *P. leptothyrsa* var. *multifurca*. He separated it therefrom by the structure of the inflorescence and by the fact that the pyrenes are smooth on the back and have a completely homogeneous, nonruminant endosperm. According to Valeton, in the latter taxon the pyrenes are ribbed on the back and have a T-shaped invagination into the endosperm from the ventral surface of the pyrene. My own work has not supported Valeton's observation of pyrene ribbing, but I

have noted the invagination on the ventral surface of the pyrene in *P. leptothyrsa* var. *multifurca*.

Again, without type material, we can do little but speculate about the identity of this taxon. I am certain that it could be included in one of my present concepts of the species already treated.

Psychotria subdicocca Valetton, Bot. Jahrb. 61: 102 (1927).—Type: *Ledermann* 11765 (not seen), PNG: NE New Guinea: "Schraderberg," at 2,070 m, 29 May 1913.

Valetton described this taxon as a small tree 4–5 m tall, with white petioles and pedicels and red fruit. The leaf blades were described as thickly membranaceous, 16 cm long, elliptic, and with 14 lateral veins per side. The inflorescence was reported as quite large, 16 × 20 cm long and wide, with verticillately arranged branches, and the fruit was described as subdicocous with endosperm strongly ruminant. Valetton considered this taxon as being very similar to *P. diplococca* but differing therefrom by the smaller fruit and leaves. *Psychotria subdicocca* may be the same as the taxon I have recognized as *P. diplococca* var. *tauriensis*, var. nov. Without type material for Valetton's taxon we may never know for sure.

Psychotria(?) subrepanda Lauterbach & Schumann, Fl. Deutsch. Schützgeb. Südsee, p. 579 (1901).—Type: *Rodatz & Klink* 219 (not seen), PNG: NE New Guinea: "Kaiser Wilhelmsland: Bismarck-Gebirge," 4 Jul 1899.

It is impossible to develop from the authors' description any concept of the relationships of this taxon. It may not even belong with *Psychotria*. The authors had considerable doubt as to the generic placement of their new taxon.

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