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Notes on Micronesian Rubiaceae¹

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The following notes are based mainly upon the collections of Rubiaceae made by Mr. Masahiku Takamatsu, botanical collector of the Bishop Museum Expedition to Micronesia in 1936. The specimens, collected in the Caroline and Palau (Pelew) Islands, were loaned to me for study by Bernice P. Bishop Museum, where the specimens cited may be consulted. These are designated by (Ho). Much of the work was done in the herbarium of the New York Botanical Garden, where there are duplicates of many of the collections made by Dr. Ryoza Kanehira in Micronesia, as well as some other collections from that region. Specimens in the New York Botanical Garden are designated by (NY). I wish to thank these institutions for the privilege of studying the specimens. The Takamatsu collections are all cited, others only where the species are discussed critically.

Badusa palauensis Valetton.

Palau Islands: Arukodorokkuru, *Takamatsu 1155* (Ho); Olophacal, *Takamatsu 1490* (Ho); Kaiguru, *Takamatsu 1601* (Ho).

Bikkia mariannensis Brongniart var. **longicarpa** (Valetton) Fosberg, n. comb.

Bikkia longicarpa Valetton, Engler Bot. Jahrb. 63:289, 1930.

Kanehira reduces *B. longicarpa* outright to *B. mariannensis*, but his specimens have fruits uniformly about one third longer than those of plants from Guam and Saipan. The Rota plants should, therefore, be maintained as a variety.

Marianas Islands: Rota, *Kanehira 1774* (NY).

¹ Micronesian Expedition publication 3.

Bikkia palauensis Valetton.

Palau Islands: Angaur, *Takamatsu 1812* (Ho); Iwayane, *Takamatsu 1448* (Ho).

Scyphiphora hydrophyllacea Gaertner.

Palau Islands: Ngatpang, *Takamatsu 1284* (Ho); Garikiyai, *Takamatsu 1738* (Ho); Ogiwaru, *Takamatsu 1422* (Ho).

Uncaria korrensis Kanehira, Bot. Mag. Tokyo 48: 924, 1934.

This species seems to differ from *U. glabrata* De Candolle only in the shape of the calyx lobes, which are lanceolate-aristate, while in *U. glabrata* they are oblong and rounded at the apex. Corollas of *U. korrensis* are not available.

Palau Islands: Arumizu, *Takamatsu 1729* (Ho); Aimiriik (Aimelik) *Kanehira 2318* (NY) (isotype); Koror (Corol), *Kanehira 116, 1849* (NY).

Ophiorrhiza palauensis Valetton, Engler, Bot. Jahrb. 63: 298, 1930.

Palau Islands: Arukodorokkuru, *Takamatsu 1154* (Ho).

Ophiorrhiza palauensis Valetton var. **biseta** Fosberg, n. var.

Planta robusta; folia oblanceolata, 9-13 cm. longa, maxime 3 cm. lata; stipulae in 2 lobis setiformis divisae, maxime 10-11 mm. longae; calycis lobi subulati 3-3.5 mm. longi.

Differs from the typical form in being more robust, with narrower, oblanceolate leaves, 2-13 cm. long, at most 3 cm. wide; stipules divided practically to base into 2 setiform lobes, up to 10-11 mm. long; calyx lobes subulate, 3-3.5 mm. long.

Palau Islands: Ngatpang, in forests, *Takamatsu 1272* (Ho) (type).

Hedyotis biflora (Linnaeus) Lamarck.

Caroline Islands: Truk, Harushima (Moen Island), *Takamatsu 197* (Ho).

Hedyotis foetida (Forster) J. E. Smith, in Rees Cycl. 1811.

Hedyotis mariannensis Merrill, Phil. Jour. Sci. Bot. 9: 144, 1914.

The distinguishing characteristics of *H. mariannensis* as given by Merrill (Phil. Jour. Sci. Bot. 9: 145) are typical of the widespread *H. foetida*, inhabitant of coral limestone from the Cook Islands to Micronesia. Micronesian specimens often have larger leaves, and usually the fruits are a little smaller, but the differences are neither constant nor great enough to be of significance.

Hedyotis korrorensis (Valeton) Hosokawa.

Palau Islands: Garudokku, *Takamatsu 1347* (Ho).

Hedyotis laciniata Kanehira, Nat. Hist. Soc. Form., Trans. 25: 6, 1935.

The original description says the fruits are 1.5 mm. long, but on the isotype specimen cited below they are 3 mm.

Marianas Islands: Amaragan (Aramagan, Alamagan), *Kanehira 2181* (NY) (isotype).

Hedyotis laciniata Kanehira var. **Takamatsui** Fosberg, n. var.

Planta ramosa; folia acuminata; cyma laxa, ramulis inaequaliter et in-composite auctis aliquando ramulosis; calycis lobi acuti, in fructibus recurvati; fructus 2-2.5 mm. longus.

Differs from the typical form in being much more branched, having leaves longer acuminate, inflorescences much more lax, often with the middle primary branch reduced to a single pedicellate flower, the branches often unequally and irregularly developed, sometimes branching several times, calyx lobes more sharply acute, in fruit recurved, fruit 2-2.5 mm. long.

Palau Islands: Kamusetu (Kameset), *Takamatsu 1115* (Ho) (type).

Hedyotis ponapensis (Valeton) Kanehira.

Caroline Islands: Ponape, Nan-a-laut, *Takamatsu 1088* (Ho).

Hedyotis tomentosa (Valeton) Hosokawa.

Palau Islands: Garudokku, *Takamatsu 1349* (Ho).

Hedyotis vestita R. Brown.

Palau Islands: Kasiuru, *Takamatsu 1512* (Ho).

Dentella repens Forster.

Marianas Islands: Guam, Agana, *Seale* (Ho).

Mussaenda frondosa Linnaeus, Species Plantarum 177, 1753.

This species is extremely variable and much in need of a careful taxonomic revision. Until this is done, I see nothing to be gained by recognizing any of the various segregates from it, *M. sericea* Bl. for instance.

Caroline Islands, Yap: Balabat, *Takamatsu 1872* (Ho); Gorrer, *Takamatsu 1856* (Ho).

Palau Islands: Garudokku, *Takamatsu 1348* (Ho); Garasumao, *Takamatsu 1570* (Ho); Arukodorokkuru, *Takamatsu 1151* (Ho).

Randia carolinensis Valetton, Engler Bot. Jahrb. 63: 301, 1930.

Timonius megacarpus Kanehira, Bot. Mag. Tokyo 46: 494, 1932.

Rhopalobrachium megacarpus Kanehira, Bot. Mag. Tokyo 46: 674, 1932.

Trukia megacarpa Kanehira, Bot. Mag. Tokyo 49: 279, 1935.

A comparison of the descriptions of *Randia carolinensis* and of *Trukia megacarpa* shows that they are identical in almost every detail. Examination of the plants cited below, including 2 sheets of one of the original collections of *Trukia*, shows that they conform in all particulars to *Randia*. Indeed, they differ only in details from *R. sessilis* F. von Müller and *R. Fitzalani* F. von Müller of Queensland. I have not seen the *R. albituba* to which Valetton says his species is closely related. The enlarged corolla throat, notable in *Trukia*, is also present in *R. tenuiflora* A. C. Smith, of Fiji. What Kanehira took for pyrenes in the fruit seem to be very hard seeds, which are embedded in fleshy placentae, as is characteristic of *Randia* and all other Gardeniae.

In view of the above facts, I do not hesitate to reduce the monotypic genus *Trukia* to *Randia* and to consider *Trukia megacarpa* as completely synonymous with *R. carolinensis*.

Caroline Islands, Truk: Natsushima (Dublon Island), *Takamatsu* 69, 83, 158 (Ho) (flowers said to be white, but not present on specimens); Tol Island (Suiyoto), *Takamatsu* 38 (Ho), *Kanehira* 1275 (NY).

Randia cochinchinensis (Loureno) Merrill, Am. Phil. Soc. N. S., Trans. 24: 365, 1935.

Randia racemosa Fernandez-Villar, Novis. App. Fl. Filip. 108, 1880.

Palau Islands: Garasumao, *Takamatsu* 1578 (Ho); Arukodorokuru, *Takamatsu* 1152, 1139, 1132 (Ho); Olopshacal, *Takamatsu* 1471, 1483 (Ho); Arakabesan, *Takamatsu* 1253 (Ho).

Caroline Islands: Ponape, Taman, *Takamatsu* 877 (Ho).

Guettarda speciosa Linnaeus.

Palau Islands: Olopshacal, *Takamatsu* 1461 (Ho); Ogiwaru, *Takamatsu* 1423 (Ho).

Caroline Islands, Ponape: Na Island, *Takamatsu* 847 (Ho); Taman, *Takamatsu* 874 (Ho). Truk: Kacide (Param Island), *Takamatsu* 325 (Ho). Kusaie: Mot, *Takamatsu* 457 (Ho); Mount Matante, *Takamatsu* 568 (Ho).

Timonius albus Volkens.

Caroline Islands, Yap: Balabat, *Takamatsu* 1885a, 1881 (Ho); Kanif, *Takamatsu* 1918, 1960 (Ho); Rumung Island, *Takamatsu* 1905 (Ho).

Timonius corymbosus Valetton, Engler Bot. Jahrb. 63: 308, 1930.

Timonius korrensis Kanehira, Bot. Mag. Tokyo 45: 351, 1931.

Kanehira's *T. korrensis* seems to correspond very well with *T. corymbosus*, but in specimens I have seen the leaves and stipules are not as large as the maximum described by Valetton. The staminate inflorescence is quite variable in size and complexity.

Palau Islands: Olophacal Island, *Takamatsu* 1478, 1458, 1452 (all Ho); Kaiguru, *Takamatsu* 1580 (Ho); Peleliu, *Takamatsu* 1786 (Ho); Koror, *Kanehira* 460, 2462, 105, 2444, 2436, 2466 (all NY).

Timonius Ledermannii Valetton, Engler Bot. Jahrb. 63: 305, 1930.

The striking resemblance of this species and *T. affinis* Gray (of Fiji) has not, I think, hitherto been pointed out. In material lacking pistillate flowers the only discernible difference is in the more prominently reticulate lower surface of the leaves of *T. Ledermannii*, and a slightly different pattern of the reticulation of the upper surface. The important difference is in the corolla of the pistillate flowers, which, in *T. Ledermannii*, has the tube 5-7 mm. long, expanding from 2 mm. wide at base to 4 mm. wide at top, and 8-12 lanceolate-acuminate lobes 5-6 mm. long, while that of *T. affinis* has a more slender tube about 17 mm. long (acc. Gillespie), with only 5 lobes. The calyx of the latter is also somewhat longer than in *T. Ledermannii*.

Timonius mollis Valetton, Engler Bot. Jahrb. 63: 308, 1930.

Timonius villosissimus Kanehira, Bot. Mag. Tokyo 48: 923, 1934.

These two species seem identical in every respect. The leaves vary in size, and the slightly larger fruit and longer pedicel seem merely individual variations.

Palau Islands: Aimiriik, *Kanehira* 2305 (NY) (2 isotype sheets); Arekalong, *Takamatsu* 1660 (Ho); Kaiguru *Takamatsu* 1623 (Ho).

Timonius ponapensis Valetton.

Caroline Islands, Ponape: Toleailuka, *Takamatsu* 826 (Ho).

Timonius subauritus Valetton, Engler Bot. Jahrb. 63: 307, 1930.

This species is variable in pubescence, and somewhat in leaf shape.

Kanehira 415 is ochraceous on the branchlets, veins on under sides of leaves, stipules, and inflorescences (in Kanehira's Enumeration of Micronesian Plants this specimen was referred to both *T. mollis* and *T. corymbosus*, but it seems unquestionably to belong to *T. subauritus*). In most specimens the pubescence is thinly sericeous. The leaves in Kanehira 2344 are cuneate at base, while in most specimens they are subcordate.

Palau Islands: Garudokku, *Takamatsu 1418* (Ho); Garikiai, *Takamatsu 1733* (Ho); Aimiriik (Aimelik) *Kanehira 1928, 2344, 2323, 2284* (all NY); Koror (as Corol), *Kanehira 145* (NY); Marukiyoku, Main Island (Babelthuap), *Kanehira 415* (NY); Armonogui, Main Island (Babelthuap), *Kanehira 505* (NY).

Canthium barbatum (Forster) Seemann, var. ***korrorense*** (Valeton) Fosberg, n. comb.

Plectromia korrorensis Valeton, Engler Bot. Jahrb. 63: 311, 1930.

Canthium korrorense Kanehira, Bot. Mag. Tokyo 46: 671, 1932.

The characters separating Valeton's species from *C. barbatum* are just such as I have used in distinguishing the Polynesian varieties of this species (B. P. Bishop Mus. Occ. Papers 13 (19): 255-261, 1937). Therefore I am reducing the Micronesian plant to varietal status. It is the first time that *C. barbatum* has been recognized from Micronesia.

The essential characters of the variety are as follows:

Branches robust, internodes terete, 3-6 cm. long; leaves thin-coriaceous, acuminate, base contracted, veins opaque; inflorescence usually many-flowered, congested, thick, variable in size, with internodes so crowded as to be indistinct, pedicels 3-6 mm. long, elongating to 1 cm. in fruit; calyx glabrous; corolla tube (2)-3-4 mm. long, lobes ovate 2-2.5 mm. long; fruit obovoid, flattened, not notched at apex, slightly grooved laterally, 8-10 mm. long, 7-9 mm. wide.

Caroline Islands, Ponape: Toleailuka, *Takamatsu 815* (Ho); Toletik, *Takamatsu 941* (Ho); Mount Tolotom, *Takamatsu 1060* (Ho); Mount Tean, *Takamatsu 1761* (Ho); Param, *Takamatsu 621* (Ho); Kolonia (Ponape), *Kanehira 1482, 1489* (NY); Parkier, *Kanehira 1520, 1699, 1497* (NY).

Canthium odoratum (Forster) Seemann, Fl. Vit. 132, 1866.

Randia tinianensis Kanehira, Bot. Mag. Tokyo 46: 494, 1932.

Canthium tinianense (Kanehira) Kanehira, Bot. Mag. Tokyo 49: 354, 1935.

After studying series of plants of this species from all parts of its range, and observing it in the field in Polynesia, I am unable to find characters which seem to have any geographic localization of sufficient constancy to be used in separating even varieties. The species is most variable, but the variations are as likely to occur on trees growing side by side as on islands a thousand miles apart. It is a case where, with a few specimens, apparently distinct species are represented, but more collections completely break them down. (See Fosberg, Bishop Mus. Occ. Papers 13 (19): 253-255, 1937.) Material from Tinian and Rota (*C. tinianense*) does not appear to me to differ significantly from that from other parts of the Pacific.

Marianas Islands: Tinian, *Kanehira* 2275, 1059, 1069, 50 (NY). Rota, *Kanehira* 1745.B (NY).

Gynochthodes ovalifolia (Valeton) Kanehira, Bot. Mag. Tokyo 46: 351, 1931.

Plectronia ovalifolia Valeton, Engler Bot. Jahrb. 63: 310, 1930.

To the best of my knowledge, the flowers of this species have not yet been described. Takamatsu 1270 has one open flower and a number of buds, from which the following description has been drawn up:

Hypanthium at anthesis urceolate, 2 mm. high and slightly less than that wide, calyx entire, somewhat flaring, somewhat crisped when dry, calyx and hypanthium glabrous; corolla externally glabrous, salverform, 5-lobed, tube 4 mm. long, somewhat over 1 mm. thick, only slightly dilated at throat, glabrous within, below the attachment of filaments, throat and lobes densely gray-woolly within, lobes linear, 7 mm. long, 1 mm. wide, acute, less woolly near apex, limb in bud spindle-shaped, acute; anthers linear, 4.5 mm. long exserted, dehiscing before opening of bud, dorsally attached 1 mm. from base, filaments glabrous, free portion somewhat shorter than anthers; disk raised, conic-umbonate, style glabrous, including branches about 9 mm. long, bifid about half-way into linear flattened lobes, stigmatic on inner side and with margins somewhat revolute, branches much shorter in bud.

Palau Islands: Garudokku, *Takamatsu* 1270 (Ho); Kamusetsu (Kameset), *Takamatsu* 1118 (Ho); Arumizu, *Takamatsu* 1728 (Ho).

Caroline Islands, Truk: Harushima (Moen Island), *Takamatsu* 237 (Ho).

Morinda citrifolia Linnaeus.

Caroline Islands: Ponape: Na Island, *Takamatsu* 852 (Ho); Param, *Takamatsu* 630 (Ho). Truk: Natsushima (Dublon Island), *Takamatsu* 270 (Ho). Yap: Kanif, *Takamatsu* 1912, 1956 (Ho).

Kanehira 1864 (NY), from Palau, referred to *M. pedunculata*, seems rather to belong to *M. citrifolia*.

Morinda pedunculata Valetton.

Palau Islands: Garasumao, *Takamatsu 1547* (Ho); Garudokku, *Takamatsu 1323, 1417* (Ho); Marukiyoku, *Takamatsu 1719* (Ho); Kaiguru, *Takamatsu 1595* (Ho).

Morinda umbellata Linnaeus var. **glandulosa** (Merrill) Fosberg, n. comb.

Morinda glandulosa Merrill, Phil. Jour. Sci. Bot. **9**: 146, 1914.

This variety differs from the typical form from Ceylon in that the leaves are obtusish rather than abruptly acuminate, coriaceous and not prominently reticulate. It resembles *M. Forsteri* except that the latter has not the densely bearded corolla throat.

Marianas Islands, Guam (type locality): Pati Point, *Bryan 1264* (Ho).

Caroline Islands, Kusaie: Mount Matante, *Takamatsu 518* (Ho).

Ixora (Phylleilema) triantha Volkens, Engler Bot. Jahrb. **31**: 476, 1901.

The Guam plants differ in the slightly shorter and broader fruit.

Caroline Islands, Yap (type locality): *Kanehira 1200, 1167* (NY); Kanif, *Takamatsu 1959* (Ho).

Marianas Islands, Guam: *Thompson 33, 99* (NY); Mount Ali-fan, alt. 270 meters, *Bryan 1204* (Ho, NY).

Ixora carolinensis Hosokawa, Nat. Hist. Soc. Form., Trans. **25**: 268, 1935.

Ixora confertiflora Valetton, Engler Bot. Jahrb. **63**: 313, 1930 (not Merrill, 1921).

Ixora pulcherrima Volkens, Engler Bot. Jahrb. **31**: 476, 1901 (not Sesse and Moç., 1887-90, nor Valetton, 1913).

Ixora Volkensii Hosokawa, Nat. Hist. Soc. Form., Trans. **25**: 259, 1935.

Study of a rather abundant series of specimens has convinced me that all of the plants of *Ixora* sect. *Ixorastrum* known from Micronesia must be regarded as belonging to one complex and variable species, though selected individuals might seem to represent at least five distinct species. I can draw no satisfactory lines between the

groups represented to separate them as species. Of the two available names I here select *Ixora carolinensis* for the species as a whole, as it has been applied to a wider range of material than has *Ixora Volkensii*.

The material available may be separated, roughly, into six varieties, which seem to merge into one another. More and better material of some of them, as well as of one or two forms known only from sterile or immature specimens either may clarify the relationships between them, or may show that what seems to be geographic separation is only the result of imperfect knowledge of the different forms present in each locality.

The following key will separate most specimens into the varieties treated below:

KEY

- A. Leaves mostly 15 cm. or more long, inflorescence ample, corolla tube over 3 cm. long, lobes 8-12 mm. long.
 - B. Inflorescence loose, its branches more or less drooping.
 - C. Leaves stiff-chartaceous or subcoriaceous, narrowly oblong to elliptical var. *typica*
 - C. Leaves thin-chartaceous, narrowly oblong to lanceolate..... var. *chartacea*
 - B. Inflorescence somewhat stiff, with stronger branches..... var. *Volkensii*
- A. Leaves well under 15 cm. long, mostly lanceolate, corolla tube usually under 3 cm. long, lobes 5-8 mm. long.
 - B. Leaves mostly about 1.5 cm. wide var. *ponapensis*
 - B. Leaves mostly 2 cm. or more wide.
 - C. Inflorescence condensed, pedicels and ultimate internodes thickened and hirtellous, hypanthium hirtellous var. *lanceolata*
 - C. Inflorescence loose, parts not thickened, glabrous, hypanthium glabrous var. *parvifolia*

***Ixora carolinensis* Hosokawa var. *typica* Fosberg, new name.**

Ixora carolinensis Hosokawa, Nat. Hist. Soc. Form., Trans. 25: 268, 1935. (sensu stricto).

Ixora confertiflora Valetton, Engler Bot. Jahrb. 63: 313, 1930.

Leaves elliptic to oblong, subcoriaceous, usually 18-25 cm. long, 6-9 cm. wide, occasionally larger or smaller, pairs of secondary veins 9-18, varying with length of leaf; inflorescence ample, 10-15 cm. across exclusive of corollas, rather open and weak, branches often drooping.

Type locality Palau Islands, Koror.

Palau Islands: Garudokku, *Takamatsu 1350* (Ho); Aimiriik (Aimelik), *Kanehira 2360* (NY); Koror, *Kanehira 1848*, (as *Corol*)

125 (NY); small islands near Koror, *Herre* 26, 50 (NY) (no. 50 approaches var. *parvifolia*).

Caroline Islands, Ponape: *Kanehira* 1469, 636 (NY). Kusaie: *Kanehira* 1311 (NY); Mount Matante, *Takamatsu* 502, 542 (Ho).

A sterile specimen from the last locality, *Takamatsu* 580 (Ho) has the leaves lanceolate.

Ixora carolinensis Hosokawa var. ***Volkensii*** (Hosokawa) Fosberg, n. comb.

Ixora pulcherrima Volkens, Engler Bot. Jahrb. 31: 476, 1901.

Ixora Volkensii Hosokawa, Nat. Hist. Soc. Form., Trans. 25: 259, 1935.

Differs from var. *typica* in the stiffer, usually somewhat more compact inflorescence, its branches not at all drooping.

Caroline Islands, Yap: Kanif, *Takamatsu* 1946 (Ho); without locality *Kanehira* 1093, 1122 (NY).

Ixora carolinensis Hosokawa var. ***chartacea*** Fosberg, n. var.

Folia anguste oblonda, chartacea, supra venulosa.

Leaves narrowly oblong, acuminate, upper surface somewhat venulose, thin-chartaceous, otherwise as in var. *typica*.

Caroline Islands, Truk: Harushima (Moen Island), *Takamatsu* 235 (Ho) (type). Kusaie; Lele, *Takamatsu* 344 (Ho) (an immature specimen, probably belonging here, though not so venulose above).

Ixora carolinensis Hosokawa var. ***parvifolia*** Hosokawa, Nat. Hist. Soc. Form., Trans. 24: 204, 1934.

Ixora carolinensis var. *parviflora* Kanehira, Jour. Dept. Agr. Kyushu Univ. 4: 420, 1935, sphalm.

Ixora confertiflora Valetton var. *parvifolia* Hosokawa, Nat. Hist. Soc. Form., Trans. 24: 204, 1934.

Leaves lanceolate, stiff-chartaceous to thin-chartaceous, 10-15 cm. long, (1.5)-2.5-4-(5.5) cm. wide, secondary veins 10-16 pairs; inflorescence stiff, 6-10 cm. wide; corolla tube about 2.5 cm. long, lobes 8 mm. long; fruit somewhat didymous, 6 mm. high, 7.5 mm. wide, 5 mm. thick (dried).

Palau Islands: *Kanehira* 515 (NY) (two plants with different leaf-shape represented); Ngatpang, *Takamatsu* 1302 (Ho); Arekalong, *Takamatsu* 1657 (Ho) (the pieces in this collection vary greatly, and can scarcely have come from one plant).

Caroline Islands, Ponape: Anapeng-pa, *Takamatsu* 746 (Ho).

***Ixora carolinensis* Hosokawa var. *ponapensis* Fosberg, n. var.**

Folia lanceolata, coriacea vel subcoriacea, 8-10 cm. longa, 1.5 cm. lata; thyrsa compacta, dura, 3-4 cm. lata; corollae tubus 2-2.5 cm. longus, lobi 5-7 mm. longi.

Leaves lanceolate, coriaceous to subcoriaceous, 8-11 cm. long, 1.5 (rarely 2.5) cm. wide, secondary nerves 12-16 pairs (not dependent upon leaf size); inflorescence compact, stiff, 3-4 cm. wide (excluding corollas); corolla tube 2-2.5 cm. long, lobes 5-7 mm. long.

Caroline Islands, Ponape: Wone, *Takamatsu 1031* (Ho) (type); Nanue, *Takamatsu 1008* (Ho); Toleailuka, *Takamatsu 809* (Ho) (sterile, leaves somewhat too wide, referred to here with doubt).

***Ixora carolinensis* Hosokawa var. *lanceolata* (Kanehira) Fosberg, n. comb.**

Ixora pulcherrima var. *lanceolata* Kanehira, Fl. Micron. : 361, 1933 (nom. nud.).

Ixora Volkensii var. *lanceolata* Kanehira, Jour. Dept. Agr. Kyushu Univ. 4: 421, 1935.

Leaves subcoriaceous, narrowly oblong to elliptic-lanceolate, apex obtuse to acute, apiculate, blade 7-9-(10) cm. long, 2-2.5-(3.3) cm. wide; inflorescence condensed, 4.5 cm. wide, the ultimate branchlets and pedicels thickened and hirtellous; hypanthium hirtellous; corolla tube 2.6-2.8 cm. long, lobes 4-5 mm. long.

Caroline Islands, Yap: *Kanehira 1092* (NY) (isotype).

Distinguished easily from var. *ponapensis* and var. *parvifolia* by the hirtellous hypanthium and the obtuse, apiculate leaves.

PSYCHOTRIA

There is, so far as I can see, no reason whatever for separating from *Psychotria* those Micronesian species which have been assigned to the genus *Amaracarpus*. Leaving *Amaracarpus*, as it is known elsewhere, out of the discussion, the Micronesian species are typical *Psychotria* in every way, providing that plants with axillary inflorescences can be included in that genus, and if the inflorescence must be terminal then many of the Pacific species of *Psychotria* will have to find other disposition.

The Micronesian group seems characterized by filiform or at least very slender inflorescences. The differences used to separate most of the species are, to me, trivial and unimportant, rather differences between individual plants than between species. I cannot even, at

present, see any basis for varietal distinction. Only one species of this relationship seems to be sufficiently distinct from the common form to be maintained.

Psychotria carolinensis (Valeton) Fosberg, n. comb.

Amaracarpus carolinensis Valeton, Engler Bot. Jahrb. **63**: 318, 1930.

Amaracarpus Kraemeri Valeton, Engler Bot. Jahrb. **63**: 319.

Amaracarpus kusaiensis Kanehira, Bot. Mag. Tokyo **49**: 276, 1935.

Amaracarpus mariannensis Kanehira, Bot. Mag. Tokyo **48**: 926, 1934.

Amaracarpus Kanehirae Hosokawa, Nat. Hist. Soc. Form., Trans. **25**: 35, 1935.

I have seen no specimens of *Amaracarpus rotensis* Hosokawa, or of *A. ladronicus* Hosokawa, but can find nothing in the original descriptions to separate them from this species. *Amaracarpus macrophyllus* Valeton, does not seem, from the description, to differ much. However, the brown pubescence and large leaves suggest the following species.

Marianas Islands, Amaran (Aramagan, Alamagan): *Kanehira* 2186 (NY) (isotype of *A. mariannensis*).

Palau Islands: Angaur, *Takamatsu* 1801 (Ho); Koror (Coral Islands), *Kanehira* 2475 (NY).

Caroline Islands, Kusaie: *Kanehira* 1339 (NY) (isotype of *A. kusaiensis* and *A. Kanehirae*); Mount Matante, *Kanehira* 1442 (NY); Mount Faming, *Takamatsu* 500 (Ho). Ponape: Parkier, *Kanehira* 1506 (NY); Param, *Takamatsu* 638 (Ho); Anapeng-pa, *Takamatsu* 742 (Ho). Truk: Harushima (Moen Island), *Takamatsu* 192 (Ho); Natsushima (Dublon Island), *Takamatsu* 58, 59 (Ho); Tol Island (Suiyoto), *Kanehira* 1297 (NY).

Specimens from Truk are somewhat less pubescent than those from other islands.

Psychotria ponapensis Fosberg, n. name.

Amaracarpus hirtellus Valeton, Engler Bot. Jahrb. **63**: 320, 1930.
(not *Psychotria hirtella* Oliver, 1887).

This seems a satisfactory distinct species, characterized by large, elliptic to obovate leaves, the whole plant pubescent; and long, pendent, filiform inflorescences.

I have not seen material of *Amaracarpus heteropodioides* Valetton, but suspect it may possibly belong here, in which case the specific name would have to be changed.

Caroline Islands, Ponape: Mount Nan-a-laut, *Kanehira* 1619, 1671 (NY).

Psychotria arbuscula Volkens.

Caroline Islands, Yap: *Kanehira* 1168, 1186 (NY); Takiol, *Takamatsu* 1834 (Ho); Balabat, *Takamatsu* 1885 (Ho).

Psychotria lasianthoides Valetton.

Caroline Islands, Ponape: Kuporujo, *Takamatsu* 672 (Ho).

Psychotria leptothyrsa Miquel var. ***longicarpa*** Valetton.

Palau Islands, Aimiriik (Aimelik): *Kanehira* 278, 2313 (NY); Garudokku, *Takamatsu* 1233, 1216 (Ho); Garasumao, *Takamatsu* 1573 (Ho).

Caroline Islands, Yap: *Kanehira* 1187 (NY); Balabat, *Takamatsu* 1862 (Ho); Takiol, *Takamatsu* 1837, 1848 (Ho).

Psychotria mycetoides Valetton.

Not satisfactorily distinguishable from *P. leptothyrsa* on the basis of material at hand, though probably distinct.

Palau Islands: Aimiriik (Aimelik), *Kanehira* 2329 (NY); Koror (Coral Islands), *Kanehira* 2476 (NY); Kaiguru, *Takamatsu* 1630 (Ho); Almaten, *Takamatsu* 1530 (Ho); Garasumao, *Takamatsu* 1568 (Ho); Marukiyoku, *Takamatsu* 1711 (Ho). The last two collections are doubtfully placed here, because of poor material.

Psychotria leptothyrsoides Kanehira.

Caroline Islands, Truk: Tol Island (Suiyoto), *Takamatsu* 12 (Ho).

Psychotria rhombocarpa Kanehira.

Caroline Islands, Kusaie: Mot, *Takamatsu* 466 (Ho); Mount Matante *Takamatsu* 511 (Ho).

Psychotria Merrillii Kanehira, Bot. Mag. Tokyo 46: 674, 1932.

Plectronia polyneura Valetton, in Engler Bot. Jahrb. 63: 309, 1930.

(not *Psychotria polyneura* De Candolle, 1830, or Kurz, 1875).

Plectronia obovata Valetton, Engler Bot. Jahrb. 63: 311, 1930 (not

Psychotria obovata Wall., 1828-49, or Ruiz and Pavon 1798, or Hemsley 1879).

Canthium polyneurum (Valeton) Kanehira, Bot. Mag. Tokyo 46: 672, 1932.

This species is typically a *Psychotria* in every respect. The ovules are erect, attached at base of cells, the pyrenes are flattened ventrally and tricarinate or sulcate dorsally. The distinguishing feature is the inflorescence, which is reduced to a fascicle of pedicels.

I see no difference, except in hairiness, between *Plectronia polyneura* and *P. obovata*, the latter being a hairy extreme, such as is sometimes found in other species of this relationship growing side by side with glabrous or glabrate forms (see Fosberg, B. P. Bishop Mus. Occ. Papers 13 (19) : 279, 1937).

Caroline Islands, Ponape: Mount Nan-a-laut, Kanehira 1661, 1618 (NY); Tolomail, Takamatsu 960 (Ho); Toleailuka, Takamatsu 812 (Ho); Anapeng-pa, Takamatsu 770a (Ho).

In addition to the wild plants discussed above, the following were collected in cultivation: *Gardenia jasminoides* Ellis [Caroline Islands, Ponape: Anapeng-pa, Takamatsu 768 (Ho). Kusaie: Mount Wakkapp, Takamatsu 422 (Ho)]. *Coffea arabica* Linnaeus [Caroline Islands, Ponape: Anapeng-pa, Takamatsu 770 (Ho)]. *Ixora coccinea* Linnaeus [Caroline Islands, Kusaie Takamatsu 351 (Ho)].

The gardenia is said to have grown in the forest, but it is the common cultivated species.