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A Revision of the Hawaiian species of Myrsine (Suttonia, Rapanea), (Myrsinaceae)

By EDWARD Y. HOSAKA
BERNICE P. BISHOP MUSEUM

INTRODUCTION

Myrsine (Suttonia, Rapanea) is an indigenous genus found in the native forests and bogs of the Hawaiian islands. The largest trees reach a height of 70 or more feet and are conspicuous in the forests. Some of the species, which are known to the Hawaiians as *kolea*, were utilized in Hawaiian material culture. The red sap from the bark was used for dyeing barkcloth, and the pink-colored wood, which is fairly hard, was used for house posts and beams.

In attempting to identify the Hawaiian species of the genus *Myrsine* (*Suttonia*), I found that the group needed revision. Plants previously thought to belong to the same species differed in the shape and size of leaves and fruits. My study of the Hawaiian species led to the question of the generic status of *Suttonia, Myrsine,* and *Rapanea.* As a result of examining the types and specimens of the respective genera, I have made *Suttonia* and *Rapanea* synonymous with *Myrsine.*

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History of the Genus

The Hawaiian species were placed in the genus *Myrsine* until Carl Mez [Pflanzenr. 9 (IV.236): 332, 1902] in his monograph on Myrsinaceae, transferred them to the genus *Suttonia*.

Suttonia was first described by A. Richard [Essai Fl. Nouv.-Zél. 349, pl. 38, 1832]. The type species is *Suttonia australis* Richard, of New Zealand. Thirteen years later J. D. Hooker (Bot. Antarctic Voy. 1: 49, 1845) described a genus *Suttonia* based on species of Richard's *Suttonia*, one of which was the original *S. australis*. Thus the *Suttonia* of Hooker is invalid. He says that three of Richard's species have the petals free, but that in the fourth, *Suttonia salicina*, the petals are slightly adherent at the base. Mez, not Hooker, changed the concept of *Suttonia* in removing the type *S. australis* to the genus *Rapanea*, giving no reason whatever. Neither was there any apparent reason for calling it *Rapanea Urvillei* (A. de Candolle) Mez. *Rapanea* was first described by J. B. Aublet (Hist. Pl. Guiane Franç. 1: 121, 1775). The type species is *Rapanea guianensis* Aublet. *Myrsine Urvillei* A. de Candolle, 1834 is a synonym of *Suttonia australis* Richard. T. F. Cheesman (Manual of the New Zealand Flora 711, 1925) again removed it from *Rapanea* and placed it in *Suttonia*.

Mez maintained *Myrsine*, *Suttonia*, and *Rapanea* as separate genera, using characters which appear to be entirely too artificial and in disagreement with his specific descriptions of *Rapanea*, in which he includes several species with free petals. Bentham and Hooker

(Gen. Pl. 2:642, 1873) include *Suttonia* and *Rapanea* in *Myrsine,* and Pax [Die natürlichen Pflanzenfamilien 4(1): 92, 1897] retains *Suttonia* but includes *Rapanea* in *Myrsine.*

Suttonia has been separated from *Myrsine* and *Rapanea* on the character of the petals, separation versus unity. I have examined hundreds of specimens of *Suttonia,* from Hawaii and New Zealand, and of *Rapanea* from the south Pacific islands; and they show no character whereby the genera could be maintained as distinct. The major character which has been used in separating the two genera is not clear. Some of the Hawaiian species were found with petals slightly to more than half their length united (Fosberg 9081). In others the flowers had all of the petals united to a uniform distance (Degener 10210), while others had the petals irregularly united. Many plants had flowers with more distinctly united petals than some species of *Rapanea* from the South Pacific and the Philippines. I examined other structures, such as the shape of stigma and the number of seeds, with the hope of finding some distinct character that could be used in separating the genera, but found none. It therefore seems advisable to combine *Suttonia* with *Rapanea.*

To determine the status of the genera of *Rapanea* and *Myrsine,* I examined several specimens of *Myrsine africana* Linnaeus. No generic character was found that could be used to separate the two genera. The only difference between *Myrsine africana* and the species of *Rapanea* was in the exsertion of the anthers in *M. africana,* a character which seems too weak for the separation of genera. I have thus come to the conclusion that *Suttonia, Rapanea,* and *Myrsine* cannot be separated and that they should be combined under one genus.

Table 1 gives the major characters used by botanists to separate the genera. These characters overlap and are not distinct in the respective genera. The characters of the three genera, numbers 1, 2, 3, 4, and 5, are the same. Many Hawaiian plants with fused petals have been found (Degener 10210, 10232, Fosberg 9081, Rock 1255). The sixth character is slightly variable, but no one character is distinct to a genus. By priority (Linnaeus, Gen. Pl. **54,** 1737), *Myrsine* becomes the genus of the pantropic species.

Table 1. Flower Characters

Suttonia	Rapanea	Myrsine
1. hermaphrodite or polygamous	1. bisporangiate or mosporangiate dioecious	1. polygamous or dioecious
2. calyx small deeply 4-5-fid	2. sepals united at base or nearly free	2. calyx small 4-5-fid
3. corolla usually of 4-5 distinct petals	3. corolla more or less united at base	3. corolla 4-5-partite
4. stamens 4-5; filaments short or almost wanting, attached near base of petals	4. stamens inserted in the corolla tube	4. stamens 4-5, filaments short
5. ovary superior, globose	5. ovary superior, subspherical, or ellipsoidal	5. ovary free, globose
6. stigma capitate	6. stigma sessile and capitate	6. stigma capitate, fringed

Since Mez made his monographic study of this group, thousands of specimens have doubtless been collected in the different regions where the genus occurs. By making a close study, with the accumulated material from the different parts of the tropics, the genus *Myrsine* might be separated into two or three subgenera. Some of the African species, like *Myrsine africana,* might be separated from others by the exserted character of the anther.

Morphology

The species of *Myrsine* in the Hawaiian islands are trees and shrubs with glabrous or hairy branchlets and leaves. The flowers are clustered on raised bracteate gemmules in the axils of the leaves or on naked stems below the leaves. The inflorescences are in fascicles of 2-10 or more flowers. The length, width, and glandulosity of the petals; the size and shape of the sepals; and the size and shape of the anthers on the same inflorescence as well as between those of different varieties vary uniformly within certain limits so that they cannot be used as key characters.

I formerly believed the attachment of the anther to the petal to be a distinct and good diagnostic character, but after examining many flowers I conclude that it is of no merit. The distance from the base

of the petal to the point of attachment of the anther and the length of the petal in relation to the anther vary with age.

The number of flowers in a fascicle is quite constant in a few of the species and this character is usable in the key.

The shape and size of the ovary was found to be quite variable and not a key character, although in some species the ovary was less variable than in others. The shape differs from obovate to oval to ovate. The pubescence of the ovary was found to be a good character in separating *M. sandwicensis* from its variety.

The size, shape, and glandulosity of the fruit showed great variation in some of the species, while in others it was more or less constant. The fruit of *M. sandwicensis,* for example, varied from thin-shelled to fleshy.

The leaves provide the best diagnostic characters in this group. The shape and venation provide good key characters and most of the species are separated by these structures. The species are separated into two groups by the presence or absence of the marginal nerve. The texture of the leaves varies between extremes from chartaceous to coriaceous. In some species this character is unreliable, as in *M. lanaiensis*; while in others it is constant, as in *M. alyxifolia.* The pubescence of the leaf is also a good character. The type of pubescence is constant and it may be used in distinguishing some of the species. The serration of the leaf is another character that is reliable and usable in identifying some of the species. In some species the shape of the leaf tip is a distinct diagnostic character.

The length of the petiole is a good character in some of the species but the thickness of the petiole is not usable.

Of the bracts at the base of the pedicels, one is lanceolate and the other ovate; and between the two forms there seems to be a slight variation. These bracts provide no character, since they are found on all the species and the degree of variation is about the same.

The thickness of the branch tip is a usable character as in *M. pukooensis.*

The size and position of the stigmas are good characters.

Variation of Species

The genus in Hawaii is represented by two groups of plants, those that have more or less distinct and definite characters in one group

and those that have fluctuating characters in the other. On Kauai the least variable and on Hawaii the most variable plants are found. Some of the species, as *M. Wawraea, M. Juddii, M. Mezii, M. St.-Johnii,* and *M. linearifolia,* are rather constant and vary only within narrow limits; but other species, as *M. Lessertiana, M. lanaiensis, M. angustifolia, M. Rockii,* and *M. emarginata,* vary widely. The most variable species are *M. Lessertiana* and *M. lanaiensis,* most forms of which are found on the slopes of the three geologically young mountains on the island of Hawaii, namely Mauna Loa, Mauna Kea, and Hualalai. There is a strong indication that in these new environments evolution of the species is rapidly taking place.

Plants, belonging to the *Lessertiana* group, collected on the different lava flows, show great variation. Plants belonging to one species and growing side by side in lava flows of varying ages in the same climatic zone seem to vary. The most variable forms of *Lessertiana* are found on the new lava flows of Maui and Hawaii. It appears that the variation of the plants is caused by an edaphic factor. Probably there is some minor chemical element in these new lava flows which causes certain species of plants to become variable. Perhaps it is found in small quantities for several hundred years and is either used up by the plants or leached out. Some of these numerous forms may become good species. Apparently evolution is also taking place in some of the other species, as *M. denticulata* and *M. Rockii,* but these species, found on the older island of Kauai, seem to be changing rather slowly. In these species groups the variable forms are few and closely linked with the typical forms and the path of differentiation can be easily traced.

The variation in the habit of the species in relation to environment is rather striking. The large tree species are found in the lower forest areas where the rainfall is moderate and the sunshine abundant. With an increase in elevation above certain levels, especially in the rain forest, the species become smaller until under bog conditions they are dwarfed and usually with small leaves.

Geographical Distribution in the Hawaiian Islands

Willis' age and area theory, applied to *Myrsine,* seems to work nicely. The greatest development of the genus in Hawaii is at present in the high, wet mountains of Kauai. Kauai is an old island, and

hence the fauna and flora are more highly developed than those of the other islands (Hinds, B. P. Bishop Mus., Bull. **71**: 82, 1930). Hillebrand (Fl. Haw. Is. 22, 1888) says, " . . . that the flora of Mauna Loa is the poorest and most uniform, and that of Kauai the richest and most individualized in species, . . . " Pilsbry (Manual Conch., 21: 17, 1911) says, "Volcanic activity built up the older masses, subsidence followed, Kauai being the first island dismembered from the pan-Hawaiian area." Campbell (Ecology **1**: 268, 1920) says, "The flora of Kauai is not only richest in number of species, but the species are most highly specialized and many are found exclusively on this island, indicating an early separation of the island from the other members of the archipelago."

There are 16 species and 1 variety (table 2) found on Kauai, and of that number 13 are endemic to the island. One species, *M. Rockii,* is reported from Molokai bog by one single specimen collected by Skottsberg and his party (2699). The remaining 3 species have wide distribution in Hawaii. Two of these three species, *M. Lessertiana* and *M. lanaiensis* (p. 32) are poorly represented on Kauai but excellently represented on Hawaii. Some of the Kauai species are somewhat pubescent on the leaves and the only other hairy species, *M. Juddii,* is found on Oahu in a local area on the Koolau Range, where the environment is similar to the habitat of the Kauai species. In this area on Oahu is found [Fosberg and Hosaka, B. P. Bishop Mus., Occ. Papers **14**(1): 3, 1938] a typical Kauai species. Oahu has the next largest total number of species (8) and 3 varieties. Molokai has 6 species, Maui 5, and Lanai 4. Hawaii, the largest but the youngest island, has only 3 species and all of them are common on the other islands.

Table 2. Distribution of species of Myrsine in Hawaii

Species	Islands					
	Kauai	Oahu	Molokai	Maui	Lanai	Hawaii
Myrsine Mezii	×					
Myrsine Wawraea	×					
Myrsine St.-Johnii	×					
Myrsine Juddii		×				
Myrsine linearifolia	×					
Myrsine linearifolia var. Nittae	×					
Myrsine angustifolia	×					
Myrsine petiolata	×					
Myrsine Fosbergii		×				
Myrsine Fosbergii var. acuminata		×	×			
Myrsine kokeeana	×					
Myrsine denticulata	×					
Myrsine Rockii	×		×			
Myrsine alyxifolia	×					
Myrsine sandwicensis		×				×
Myrsine sandwicensis var. mauiensis		×	×	×	×	
Myrsine pukooensis	×	×	×	×	×	
Myrsine Degeneri		×				
Myrsine lanaiensis	×	×		×	×	×
Myrsine lanaiensis var. oahuensis		×				
Myrsine Fernseei	×					
Myrsine emarginata		×	×	×		
Myrsine Knudsenii	×					
Myrsine kauaiensis	×					
Myrsine Lessertiana	×	×	×	×	×	×

Some of the species have a wide distribution while others are confined to a small area. Some are found only in summit bogs, others in rain forests at 3,000 to 5,000 feet elevation, and others in dry to semi-dry lower forests.

Genus **MYRSINE** Linnaeus

Myrsine Linnaeus, Gen. Pl. 54, 1737.

Rapanea Aublet, Hist. Pl. Guiane Franç. 1: 121, 1775.

Suttonia A. Richard, Essai Fl. Nouv.-Zél. 349, pl. 38, 1832.

Suttonia Hooker, Bot Antarctic Voy. 1: 49, 1845.

Trees or undershrubs; stem terete, pubescent or glabrous; leaves entire or serrate, pubescent or glabrous; flowers hermaphrodite, polygamous or dioecious, small, pedicelled, in axillary fascicles or umbels or rarely solitary; calyx persistent, 4-6 lobed, glabrous or pubescent, ciliate; corolla 4-6 lobed, petals distinct or united at base, ciliate, glabrous or pubescent, glandular,

lobes often imbricate in the bud; stamens 4-6, filaments short or almost wanting, attached near the base of the petals or inserted in the corolla tube; anthers exserted or included, lanceolate to ovate-lanceolate, glabrous or penicillate at apex, introrse, opening lengthwise; ovary superior, globose or ellipsoidal, 1-celled, albumen horny; ovules 2-4; embryo elongate, cylindrical, often curved; stigma capitate with or without fringe, shield-shaped or lobed, sessile or raised on a short style.

Key to the Species and Varieties

A. Leaves more or less pubescent.
  B. Leaves pubescent over the whole lower surface.
    C. Leaves 1.5-2 cm. wide, 4-5.5 cm. long, brown puberulent on midrib below ..... **1. M. Mezii.**
    CC. Leaves 2.5-6 cm. wide, 4-18 cm. long.
      D. Leaves densely reddish hirtellous on the midrib below ..... **2. M. Wawraea.**
      DD. Leaves sparsely light brown hirtellous on midrib below ..... **3. M. St.-Johnii.**
  BB. Leaves pubescent only near base on lower surface.
    C. Leaves 15-25 mm. wide, hirsutulous ..... **4. M. Juddii.**
    CC. Leaves 2.5-5 mm. wide, puberulent.
      D. Leaves 4-9 cm. long ..... **5. M. linearifolia.**
      DD. Leaves 2.5-3.5 cm. long ..... **6. M. linearifolia** var. **Nittae.**
AA. Leaves glabrous.
  B. Leaves acuminate to subacuminate or the blade linear.
    C. Leaves 3-14 mm. wide.
      D. Leaves sessile or subsessile, 4-14 mm. wide, pedicels 2-4 mm. long ..... **7. M. angustifolia.**
      DD. Leaves petiolate, 3-6 mm. wide, pedicels 4-7 mm. long ..... **8. M. petiolata.**
    CC. Leaves 15-30 mm. wide.
      D. Leaves 8-14 cm. long, acuminate ..... **9. M. Fosbergii.**
      DD. Leaves 6-8 cm. long, subacuminate ..... **10. M. Fosbergii** var. **acuminata.**
  BB. Leaves acute to obtuse or emarginate.
    C. Leaves less than 3.5 cm. long.
      D. Leaves denticulate or often some leaves entire, acute or obtuse.
        E. Leaves 10-16 mm. wide ..... **11. M. kokeeana.**
        EE. Leaves 3-10 mm. wide.
          F. Young branches pubescent, pedicels 1.5-3 mm. long, leaves distinctly dentate ..... **12. M. denticulata.**
          FF. Young branches usually glabrous, pedicels 3-5 mm. long, leaves often distantly dentate ..... **13. M. Rockii.**
      DD. Leaves entire, emarginate, obtuse or minutely notched.
        E. Stigma sessile, 1.5-2 mm. across, leaves subcoriaceous ..... **14. M. alyxifolia.**
        EE. Stigma raised, 0.8-1 mm. across, leaves coriaceous.
          F. Ovary and young fruit glabrous, petioles 0.5-4 mm. long ..... **15. M. sandwicensis.**
          FF. Ovary and young fruit glandular puberulent, petioles usually 3-8 mm. long ..... **16. M. sandwicensis** var. **mauiensis.**

CC. Leaves more than 3.5 cm. in length.
D. Marginal nerve 0.3-0.5 mm. in from the margin.
E. Leaves obovate to broadly oblanceolate, base abruptly contracted, stigma subsessile, young fruit smooth.....17. **M. pukooensis.**
EE. Leaves elliptical, tapering at both ends, base not abruptly contracted, stigma raised on a 0.8-1.2 mm. long style, young fruit conspicuously corrugated.....18. **M. Degeneri.**
DD. Marginal nerve absent, if present sinuate, 0.5-2 mm. from the margin to the nearest point on the marginal nerve (when two marginal nerves are present, the inner one is taken).
E. Marginal nerve absent.
F. Petioles 5-18 mm. long.....19. **M. lanaiensis.**
FF. Petioles 2-7 mm. long (rarely 1 or 2 leaves with petiole 7 mm. long on a specimen).....20. **M. lanaiensis** var. **oahuensis.**
EE. Marginal nerve present.
F. Leaves 18-30 cm. long.....21. **M. Fernseei.**
FF. Leaves less than 15 cm. long.
G. Leaves emarginate at apex, 1-2 cm. wide, thrice or more longer than it is wide, oblanceolate.....22. **M. emarginata.**
GG. Leaves subemarginate, acute, obtuse or retuse at apex, 1-7 cm. wide, spatulate, obovate, ovate, oval or oblanceolate.
H. Leaves mostly broadest at the middle, less than 4.5 cm. wide.
I. Fruits 5-7 mm. in diameter, leaves mostly 2-3.5 cm. wide.....23. **M. Knudsenii.**
II. Fruits 7-9 mm. in diameter, leaves mostly 3.5-4.5 cm. wide.....25. **M. Lessertiana.**
HH. Leaves mostly broadest above the middle.
I. Leaves with pedicels 8-13 mm. long and leaves mostly less than 4 cm. wide.....24. **M. kauaiensis.**
II. Leaves with pedicels less than 9 mm. long; if the pedicels are about 9 mm. long the leaves are over 5 cm. wide and if the leaves are less than 5 cm. wide the pedicels are usually less than 8 mm. long.
J. Petioles mostly less than 5 mm. long, leaves cuneate at base or often tapering.....25. **M. Lessertiana.**
JJ. Petioles mostly 5-10 mm. long, leaves tapering at base.....25. **M. Lessertiana.**

1. Myrsine Mezii, spec. nov. (fig. 1).

Frutex, ramuli puberulenti, folia 3-5.5 cm. longa, 1.5-2 cm. lata supra glabra subter puberulenta, pedicelli 5-9 mm. longi puberulenti.

A small branching tree, with puberulent young stem, bark with inconspicuous lenticels; leaf blades 3-5.5 cm. long, 1.5-2 cm. wide, puberulent on the lower surface, glabrous above, elliptical, oblanceolate or broadly lanceolate, apex

acute to shortly acuminate, cuneate at base, margin entire, thickened, marginal nerve submarginal, inconspicuous, midrib prominent; petioles 1.5-3 mm. long, slightly puberulent; flowers rameal, below the leaves, on slightly raised bracteate gemmules, in fascicles of 4 or more, the bracts 0.8-1.8 mm. long, 0.7-1.2 mm. wide, sparsely glandular puberulent, light brown, glandular punctate, ciliate; pedicels 5-9 mm. long, slender, sparsely puberulent; calyx sparsely puberulent on the outer surface, glabrous inside; lobes 1-1.5 mm. long, acute, ciliate, 4-6 lobed, with glandular dots; flower not seen; fruit about 5 mm. across (immature), shell thin, globose, covered with blackish and reddish linear and round glands; stigma raised on a short style, obconical, truncate.

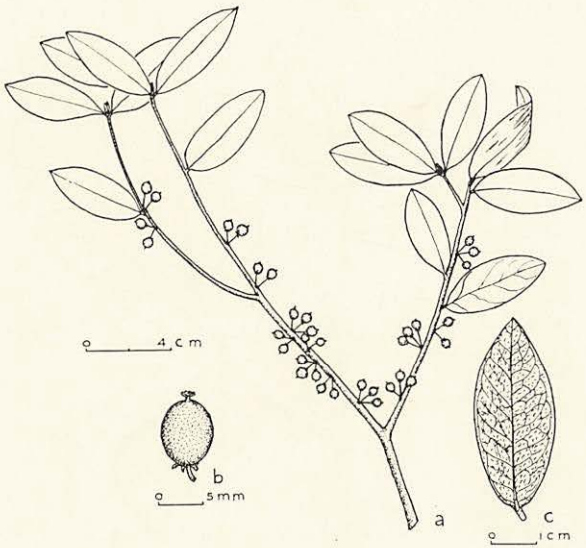

FIGURE 1.—*Myrsine Mezii:* a, habit; b, fruit; c, leaf.

Type: Kauai, *A. A. Heller 2679* (in Bishop Museum).

Distribution: Kauai, in forest above Hanapepe River. Known only from type locality.

Kauai: ridge west of Hanapepe River, Aug. 6, 1895, *Heller 2679*; same locality, *Heller 2682.*

Myrsine Mezii is close to *M. kauaiensis* and *M. St.-Johnii* but differs from these in the following characters. From *M. kauaiensis* in having puberulent young stem, puberulent lower leaf surface, smaller leaves, 3-5.5 cm. long, 1.5-2 cm. wide, puberulent pedicels, 5-9 mm. long. *M. kauaiensis* has glabrous leaves, 4-8 cm. long, 2-3.5 cm. wide, glabrous pedicels, 8-13 mm. long. From *M. St.-Johnii* in having

shorter hairs on lower leaf surface, smaller leaves, 3-5.5 cm. long, 1.5-2 cm. wide, shorter petioles, 1.5-3 mm. long, puberulent pedicels. *M. St.-Johnii* has hirtellous lower leaf surface, leaves 4-10.5 cm. long, 2.5-5 cm. wide, petioles 4-6 mm. long, pedicels glabrous.

The species is named in honor of Carl Mez who made a monographic study of the family, Myrsinaceae, to which the genus *Myrsine* belongs.

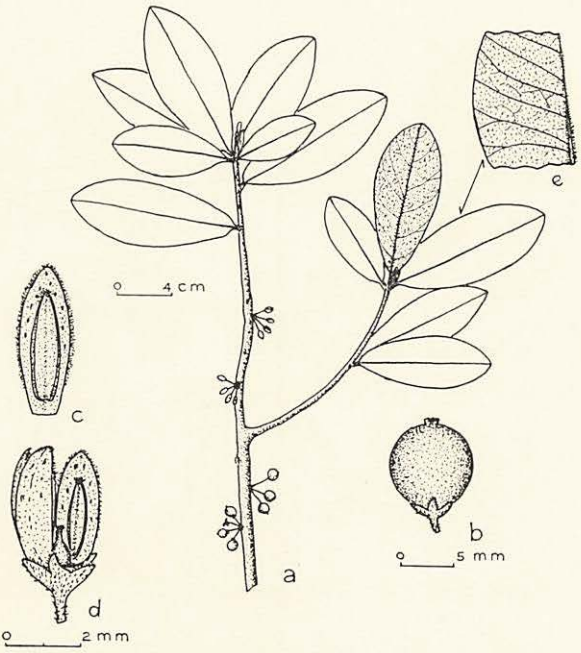

FIGURE 2.—*Myrsine Wawraea:* a, habit; b, fruit; c, petal; d, flower; e, enlarged section of leaf.

2. **Myrsine Wawraea** (Mez) Hosaka, comb. nov. (fig. 2).
   Suttonia Wawraea Mez, Pflanzenr. 9(IV.236):335, 1902.
   Myrsine Gaudichaudii A. de Candolle var. *hirsuta* Wawra, Flora 57: 524, 1874.
   Myrsine Kauaiensis Hillebrand var. *hirsuta* Hillebrand, Fl. Haw. Is., 281, 1888.
   Rapanea Wawraea (Mez) Degener and Hosaka, Flora Hawaiiensis, 1939.

Tree 3-5 m. tall, young stem hispidulous; leaf blades 7-18 cm. long, 3-6 cm. wide, elliptical, obovate or oblanceolate, cuneate at base, acute to obtuse at apex, reddish hirtellous on both surfaces, upper surface glabrous when old, subcoriaceous, punctate, margin entire, slightly revolute, marginal nerve close to edge, midrib prominent beneath, densely reddish hirtellous; petioles 3-10 mm. long, densely hirtellous; flowers rameal, below the leaves, on raised bracteate gemmules, in fascicles of 5-20, the scarious bracts ovate to linear lanceolate, 1.2-2.5 mm. long, 0.8-1.4 mm. wide, reddish, glandular pubescent on both surfaces, ciliate; pedicels 7-10 mm. long, reddish-brown hirtellous; calyx hirtellous, 5-6 lobes, obtuse, about 1 mm. long, ciliate, covered with glands; corolla tomentose to glabrous, covered with glands, petals 3-4.5 mm. long, 1-1.5 mm. wide, free (often united to middle), ciliate; anther about 2.5 mm. long, apex penicillate, base sagittate; drupe bluish black when ripe, globose to ovoid, about 8 mm. across, albumen horny, opaque; stigma sessile or slightly raised on a short style.

Type: Kauai, *H. Wawra 2118* (in Vienna).

Distribution: found in moist and swampy places in the high mountains of Kauai.

Kauai: Oct. 1916, *J. F. Rock*; tabular summit, Sept. 4, 1909, *Rock 5956*; Waimea Drainage Basin, west side, July 3 to Aug. 18, 1917, *C. N. Forbes 1144.K*; Kaholuamanu, March 3-10, 1909, *Rock 2362*; Kauluwehi forest, Oct. 1911, *Rock 10229*; Waimea Drainage Basin, west side, Kalalau trail, July 3 to Aug. 18, 1917, *Forbes 1033.K*; same locality and date, *Forbes 902.K*; Kaholuamanu, alt. 4,500 ft., Sept. 1909, *Forbes 362.K*; near tabular summit, alt. 4,400 ft., Sept. 4, 1909, *Rock 5607*; Kauluwehi Swamp, Oct. 1916, *Rock 17091*; Alakai Swamp, wet forest, alt. 1,200 m., Jan. 3, 1936, *F. R. Fosberg 12770*; trail from Alakai Swamp to head of Kalalau Valley, wet forest, alt. 1,200 m., Jan. 3, 1936, *Fosberg 12778*; Waineke Swamp, June 28, 1926, *O. Degener 3388*; Waimea, Kokee, 1939, *R. Baxter 22*.

3. **Myrsine St.-Johnii,** spec. nov. (fig. 3).

Arbor rami glabri, folia 4-10.5 cm. longa, 2.5-5 cm. lata elliptica supra glabra subter hirtella, inflorescentia 5-7 florifera, pedicelli 5 mm. longi.

Tree 4-7 m. tall, young stem glabrous; leaf blades 4-10.5 cm. long, 2.5-5 cm. wide, elliptical to oval, coriaceous, lower surface light-brown hirtellous, upper surface glabrous, marginal nerve irregular, submarginal, margin slightly revolute, midrib prominent, reddish, veins conspicuous on both sides; petioles 3-5 mm. long, sparsely pubescent to glabrous; flowers rameal, below the leaves, on bracteate gemmules, in fascicles of 5-7, the scarious bracts 1.2-2.5 mm. long, 0.8-1.2 mm. wide, ovate to lanceolate, reddish, sparsely puberulent on both sides, ciliate, punctate; pedicels about 5 mm. long, glabrous; calyx glabrous, lobes about 1 mm. long, obtuse, ciliate, with conspicuous glands; corolla 3-4 mm. long, 1-1.4 mm. wide, glabrous, covered with dark glands of various size, ciliate, petals separate; anther 2 mm. long, glabrous except for penicillate apex, base sagittate; stigma of ovary sessile, obconical, truncate, stigma of enlarged fruit slightly raised on a short style; drupe bluish black, 6 mm. across (not quite mature).

Type: Kauai, *Rock 2359* (in Bishop Museum).

Distribution: known only from the type locality in the rain forest of Kauai.

Kauai: Oct. 1916, *Rock*; Kaholuamanu, March 3-10, 1909, *Rock 2359*.

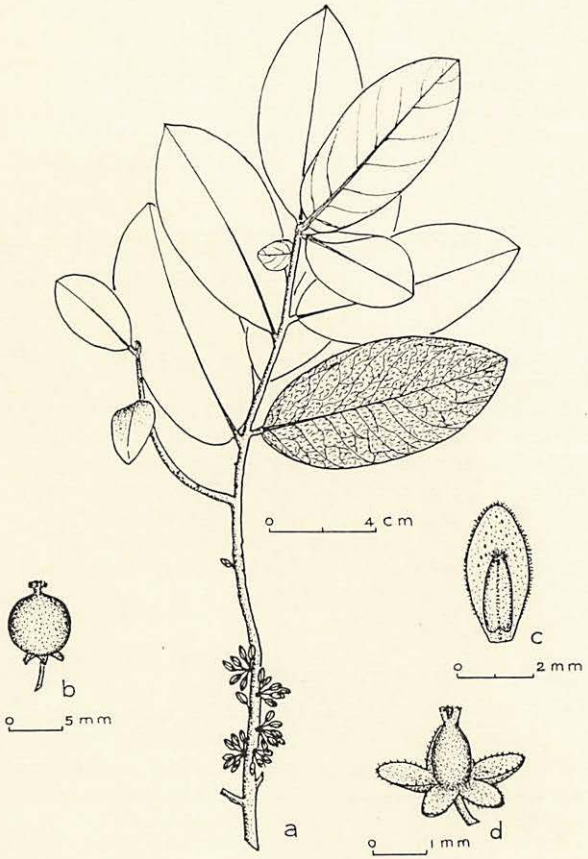

FIGURE 3.—*Myrsine St.-Johnii:* a, habit; b, fruit; c, petal; d, young fruit.

This new species is related to *Myrsine Wawraea* and *Myrsine Mezii,* but differs from them in the following characters: *M. Mezii* has puberulent lower leaf surface, leaves 3-5.5 cm. long, 1.5-2 cm. wide; petioles 1.5-3 mm. long; pedicels pubescent. *M. Wawraea* has hispidulous young stem; leaves reddish-hirtellous on both surfaces;

flowers in fascicles of 5-20, pedicels 7-10 mm. long, reddish-hirtellous; corolla usually hirtellous.

M. St.-Johnii has glabrous young stems; leaves 4-10.5 cm. long, 2.5-5 cm. wide, brown-hirtellous only on the lower surface; petioles 4-6 mm. long, glabrous; flowers in fascicles of 5-7, pedicels about 5 mm. long, glabrous; corolla glabrous.

On the type sheet of *Myrsine kauaiensis* Hillebrand are four leaves with hirtellous lower surface, three mounted on the upper left-hand corner and the fourth placed in a small envelope at the bottom of the sheet. These leaves are utterly different from those on the branch. (The sheet has one number, Knudsen 191.) Hillebrand in describing *Myrsine kauaiensis* considers the four leaves to belong to the branched specimen on the sheet and stresses the pubescence of the leaves, saying, " . . . leaves pubescent underside when young, glabrate but papillose when old." He also considers the size of these leaves " . . . 2-3½ × ¾-1½′ (inches)." Whereas the glabrous leaves on the branch are not much over 2 × 0.75 inches.

Mez, in his monograph of the Hawaiian *Suttonia (Myrsine)* (Pflanzenr., 9(IV.236) : 335, 1902) describes *Suttonia kauaiensis* (Hillebrand) Mez as having pubescent leaves, "Folia dorso dissite pilosa." Mez either thought that there were other specimens of *S. kauaiensis* with pubescent leaves that Hillebrand had seen, which were not seen by him, or Mez copied Hillebrand's description of the species without question when he found that the four pubescent leaves did not belong to the branch on the type sheet. Mez considers the leaves to belong to *Suttonia Wawraea*. The four leaves do not belong to *S. Wawraea*, but rather to *Myrsine St.-Johnii*.

It is advisable, when two species are mounted on a type sheet with single data and the characters of the two species incorporated in the description of one species, to attach the better specimen with more descriptive characters to the name and take out the other specimen. I have therefore placed the four leaves with *Myrsine St.-Johnii*, and I have used the generic name *Suttonia* where the change to *Myrsine* might cause confusion in the discussion.

This plant is named in honor of Harold St. John.

4. Myrsine Juddii, spec. nov. (fig. 4).

Frutex ad 1.5 m. altus ramuli hirsutuli, folia oblanceolata subtus subhirsuta 4-8 cm. longa, 1.5-2.5 cm. lata, petioli 2-4 mm. longi hirsutuli, pedicelli 4-8 mm. longi glabri.

Branching shrub 1.5-2 m. tall, branches hirsutulous toward the apex; leaves terminal, 4-8 cm. long, 1.5-2.5 cm. wide, oblanceolate, obtuse to subacute at apex, cuneate to subcordate at base, glabrous above, sparsely hirsutulous below toward base, dark above, light below, midrib prominent, sparsely hirsutulous toward base, lateral veins conspicuous, marginal nerve present, margin entire, slightly revolute; petioles 2-4 mm. long, sparsely to densely hirsutulous; inflorescence on bracteate gemmules, in fascicles of 4-8; bracts minute, ovate to sublanceolate, hirtellous, ciliate; pedicels 4-8 mm. long, glabrous; petals 2.8-3.2 mm. long, oblanceolate, spotted with glands, ciliate; anthers attached to the petals, penicillate at apex; calyx glabrous, sepals 0.5-1 mm. long, acute, ciliate, glandular; young fruits glabrous, ovate, with sessile to slightly raised stigma, mature fruit not seen.

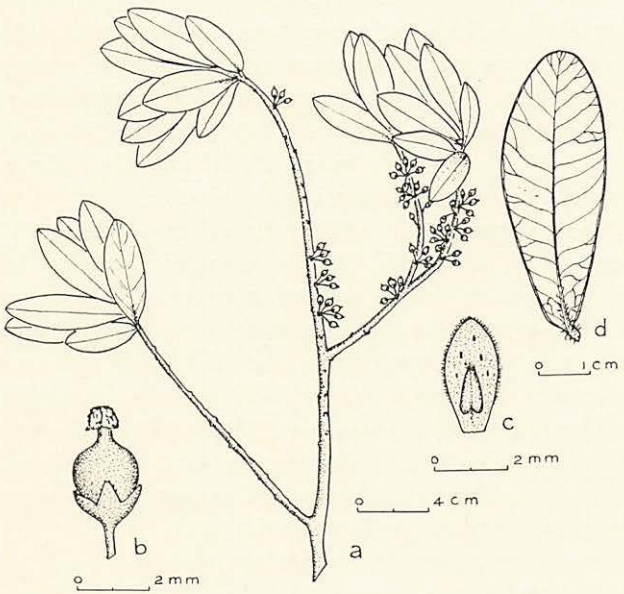

FIGURE 4.—*Myrsine Juddii:* **a**, habit; **b**, young fruit; **c**, petal; **d**, leaf.

Type: Oahu, *E. Y. Hosaka and Fosberg 1901* (in Bishop Museum).

Distribution: known only from the type locality on the island of Oahu.

Oahu: Koolau Range, divide between heads of Kawaiki [Kawaiiki] and Kaluanui Gulches, on exposed wooded ridge, alt. 2,800 ft., May 30, 1937, *Hosaka and Fosberg 1901.*

This species is distinct from any known species of *Myrsine*. It is the only pubescent species found outside of Kauai.

Myrsine Juddii is named in honor of Albert F. Judd, who had a keen interest in the preservation of native vegetation.

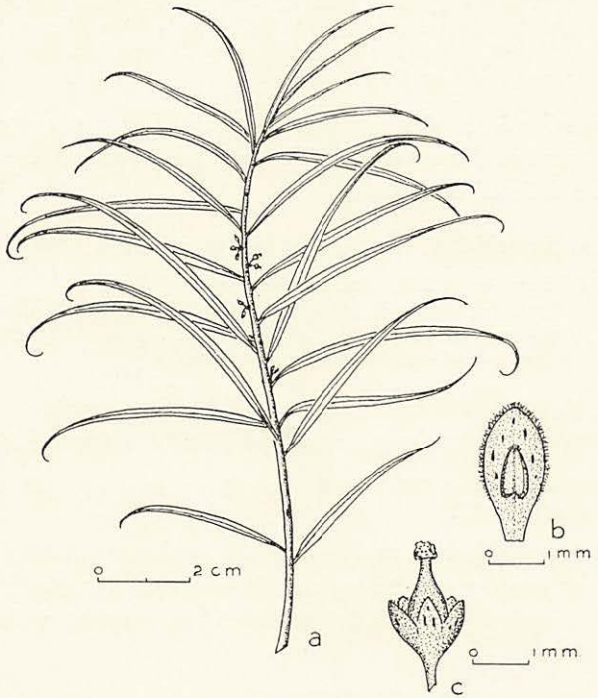

FIGURE 5.—*Myrsine linearifolia:* **a**, habit; **b**, petal; **c**, young fruit.

5. Myrsine linearifolia, spec. nov. (fig. 5).

Frutex glabrus, folia 4-9 cm. longa, 2.5-4 mm. lata glabra apice acuminata basi late sessilia.

Small glabrous shrub, stem slender, with leaf scars, leaves crowded on the ends of the branches; leaf blades 4-9 cm. long, 2.5-4 mm. wide, apex long acuminate, base broadly sessile, glabrous (except the petiolate base which is slightly puberulent) midrib prominent, reddish brown when dry, upper surface dark, lower surface light, margin entire, base often sparsely ciliate, thickened; flowers small clustered on stem in the axils of the leaves, slightly raised on bracteate gemmules, bracts 0.5-0.8 mm. long, 0.8-1.0 mm. wide, ovate, ciliate, punctate, inner surface sparsely glandular pubescent, outer surface glabrous, reddish brown; pedicels 1-2.2 mm. long, sparsely puberulent; calyx glabrous, lobes about 0.5 mm. long, acute to obtuse, ciliate; corolla not seen; ovary

glabrous; stigma raised on a long tapering style, obconical; mature fruit not seen.

Type: Kauai, *J. M. Lydgate 1* (in Bishop Museum).

Distribution: very rare species in high mountains of Kauai.

Kauai: Olokele Valley, Jan. 1912, *Lydgate 1*; on Kaala, Waimea Drainage Basin, west side, July 3 to Aug. 18, 1917, *Paleka Ono (Forbes 1156.K)*; Waimea, Kokee, 1939, *Baxter 17*; Koloa, Kalualea, in open rain forest, Dec. 31, 1939, *Degener and Ordonez 12596.*

M. linearifolia is distinct and different from any species of *Myrsine* described from Hawaii. The linear-lanceolate curved leaves are characteristic of the species.

6. Myrsine linearifolia Hosaka var. **Nittae,** var. nov.

Folia 2.5-3.5 cm. longa 2.5-5 mm. lata subsessilia.

Plant similar to the species in habit, leaves 2.5-3.5 cm. long, 2.5-5 mm. wide, lanceolate, lightly curved to straight, subsessile with a short winged petiole, sparsely puberulent on the lower surface toward base.

Type: Kauai, *Forbes 925(a)K* (in Bishop Museum).

Distribution: known only from type locality, a swamp on Kauai.

Kauai: Alakai swamp, Waimea Drainage Basin, west side, July 3 to Aug. 18, 1917, *Forbes 925(a)K.*

This variety differs from the species in having smaller leaves with subsessile or shortly winged petiole. It is named for Kazuto Nitta, a teacher of agriculture, who has collected many plants in the mountains.

7. Myrsine angustifolia (Mez) Hosaka, comb. nov. (fig. 6).

Suttonia lanceolata (Wawra) Rock, Indigenous Trees Haw. Is. 379, 1913.

Suttonia angustifolia Mez, Pflanzenr. 9(IV.236): 337, 1902.

Myrsine lanceolata (Wawra) Heller, Minn. Bot. Studies 1: 873, 1897.

Branching tree 3-5 m. tall, branches slender, dark reddish brown, covered with leaf scars, glabrous, leaves clustered at apex; leaf blades 4-7 cm. long, 5-14 mm. wide, lanceolate to linear-lanceolate, acute at base, apex long acuminate sessile to subsessile, midrib prominent below, margin entire, thickened, marginal nerve submarginal, slightly reticulate below, minutely punctate above with black dots; flowers among the lower leaves, on bracteate gemmules, single or in pairs, bracts small; pedicels 2-4 mm. long, glabrous flowers 3-3.5 mm. long, glabrous; calyx glabrous, sepal lobes about 2 mm. long, glabrous, minutely ciliate, glandular punctate; petals glabrous, ciliate, glandular punctate, anthers about 1.5 mm.

long, penicillate at apex; ovary glandular, conical; stigma slightly raised, capitate with fimbriate margin; drupes about 8 mm. in diameter, globose, glabrous, fleshy and bluish black when mature, thin and covered with long vertical dark glands when young.

Type: Kauai, *Heller 2700,* Berlin (?) (isotype in Bishop Museum).

Distribution: found in the moist high mountains of Kauai.

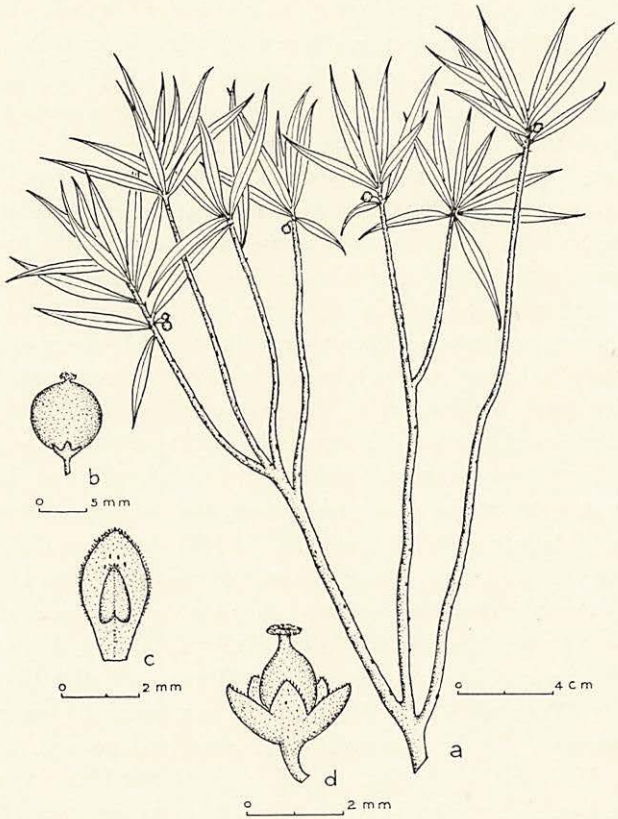

FIGURE 6.—*Myrsine angustifolia:* **a,** habit; **b,** fruit; **c,** petal; **d,** young fruit.

Kauai: in and near a bog at the head of Wahiawa, Aug. 12, 1895, *Heller 2700*; Mount Waialeale, Sept. 24, 1909, *Rock 4958*; Mount Waialeale, Oct. 20, 1911, *Rock 8887*; Waialeale, Oct. 1916, *Rock 17094*; Lihue-Koloa Forest Reserve, Kahili Swamp, Wahiawa, alt. 2,100 ft., Dec. 29, 1930, *H. St. John and others 10848*; Wahiawa, Kahili Bog, open bog, alt. 2,100 ft., Dec. 24, 1933, *St. John and Fosberg 13571*; Wahiawa Mountains, *Lydgate*; Kilohana, Aug. 13, 1938, *C. Skottsberg and party 2881*; Alakai, Aug. 16, 1938, *Skottsberg and party 2971.*

Oahu: *Remy 462* is a different species or a mistake was made in the locality. Mez [Pflanzenr. 9(IV.236) : 337, 1902] cites this specimen.

Suttonia angustifolia Mez seems to have been described under a peculiar confusion of specific name and type specimen. Wawra described a variety (*Myrsine sandwicensis* DC. var. *lanceolata,* Flora, **57** : 526, 1874) and cited specimen 2135. Heller (Minn. Bot. Studies **1** : 873, 1897) raised this variety to a species, *Myrsine lanceolata* (Wawra) Heller, basing this change on the specimen he collected on Kauai (Heller 2700), which he compared to Wawra's description of the variety. Heller evidently did not see Wawra's plant (2135), for had he seen the specimen he would not have made this change. He wrote, "That it is a good species, quite distinct from *M. sandwicensis,* is evident. The narrowly lanceolate, acuminate leaves are different, and the fruit mostly is borne in the axis of the leaves, and not below on the naked stems, as is the case in the other species." Before Heller wrote up his collecting in the Hawaiian islands he gave a manuscript name, *Myrsine tenuifolia,* to his specimen (Heller 2700) and distributed the specimens, basing the novelty of the plant on Hillebrand's description of *Myrsine sandwicensis.* Before publishing the description of *M. tenuifolia,* he learned that his specimen was similar to the described variety *M. sandwicensis* var. *lanceolata* of Wawra, so he let the manuscript name stand as a nominum nudum.

Mez [Pflanzenr., 9(IV. 236) : 337, 1902] describes *Suttonia angustifolia* (Heller) Mez, citing *M. angustifolia* Heller as a synonym, but there is no such Heller species. Mez shows confusion with some other plant name. He cites specimens Heller 2700 and Remy 462.

Rock changes *Myrsine lanceolata* (Wawra) Heller to *Suttonia lanceolata* (Wawra) Rock. He cites his specimens (4958, 8887) in the discussion. Rock also makes *M. sandwicensis* var. *lanceolata* Wawra, *M. lanceolata* Heller, and *S. angustifolia* Mez synonyms of *S. lanceolata.* He evidently did not see the type specimen of variety *lanceolata* (Wawra 2135) and made these changes by examining Heller's treatment and specimens. It is probable that he did not follow Mez's description carefully, for had he done so he should have found *S. angustifolia* to be similar to his specimens and entirely different from *S. lanceolata.*

I have examined Wawra's and Heller's specimens (2135 and 2700 respectively), and they are utterly different. Mez, during his work

on the group must have seen Wawra's 2135 and concluded that it differed from Heller's 2700, and thus took up *S. angustifolia* (Heller) Mez with the understanding that Heller had described his plant as *M. angustifolia* Heller. Mez was merely making a generic transfer from *Myrsine* to *Suttonia* and had no idea that he was describing a new species. Mez described Heller's plant and Heller's specimen (2700) becomes the type of *S. angustifolia* Mez. There are 10 sheets of Heller's collection (2700) in the herbarium of Bishop Museum, all of which thus become isotypes. The plant from which Mez drew up his description becomes the type which is probably in Berlin.

8. Myrsine petiolata, spec. nov. (fig. 7).

Frutex ad 3 m. alta, folia lanceolata vel oblanceolata glabra 2.5-4 cm. longa, 3-6 mm. lata, petioli 2-3 mm. longi.

A small spreading shrub about 3 m. tall, glabrous except for the tips of young shoots, stem slender; leaves clustered at ends of branches, leaf blades 2.5-4 cm. long, 3-6 mm. wide, glabrous, lanceolate to oblanceolate, acuminate at apex, constricted at base, margin entire, thickened, marginal nerve submarginal, midrib prominent; petioles 2-3 mm. long glabrous; flowers rameal, among and below the leaves, on bracteate gemmules, in fascicles of about 3, the scarious bracts 0.8-1.4 mm. long, 0.5-0.8 mm. wide, sparsely ciliate, sparsely glandular pubescent on the inner surface, glabrous outside, punctate; pedicels 4-7 mm. long, glabrous to often slightly puberulent; calyx glabrous,

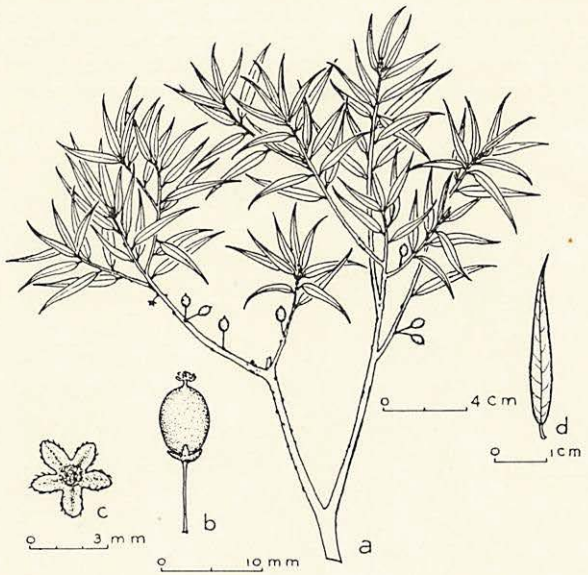

FIGURE 7.—*Myrsine petiolata:* **a,** habit; **b,** fruit; **c,** calyx; **d,** leaf.

lobes about 0.6 mm. long, acute, ciliate; flower not seen; fruits about 5 mm. across, globose to ovate, dark purple when ripe, with stigma slightly raised on a short style, obconical, truncate.

Type: Kauai, *Forbes 16.K* (in Bishop Museum).

Distribution: found in moist middle forest of Kauai.

Kauai: ridge mauka [north] of Lihue gap, July 8, 1909, *Forbes 16.K*; foot of Kahili, July 8, 1909, *Forbes 16.K*; Haiku, Laaukahi, Hoary Head Range, alt. 1,350 ft., Dec. 22, 1933, *St. John and Fosberg 13489*; Koloa, Kalualea, in open rain forest, Dec. 31, 1939, *Degener and Ordonez 12597*.

This species comes close to *Myrsine angustifolia* but differs from it in having petiolate leaves 3-6 mm. wide; pedicels 4-7 mm. long. *Myrsine angustifolia* has sessile leaves 4-14 mm. wide; pedicels 2-4 mm. long.

9. Myrsine Fosbergii, spec. nov. (fig. 8).

Arbor ad 4 m. alta glabra, folia lanceolata acuminata 8-14 cm. longa 1-3 cm. lata, inflorescentia 4-7 florifera, pedicelli 5-8 mm. longi.

Shrub or small tree 2-4 m. tall, freely branching, glabrous throughout; leaves clustered at ends of branches; leaf blades 8-14 cm. long, 1-3 cm. wide, lanceolate, long acuminate at tip, tapering into a winged petiole at base, dark green above, light green below, glabrous veins subprominent, marginal nerve close to margin, margin entire, thickened; flowers among the leaves, 4-7 on slightly raised bracteate gemmules, pedicels 5-8 mm. long, glabrous or often sparsely puberulous; calyx lobes 0.9-1.2 mm. long, narrowly obtuse, glabrous, glandular ciliate; petals 2.8-3.2 mm. long, 1.2-1.6 mm. wide, glabrous, glandular, ciliate; anther ovate, glabrous except the penicillate apex; ovary ovate with sessile stigma; drupe globose, 7-9 mm. in diameter, with minute sessile stigma, purplish black when ripe.

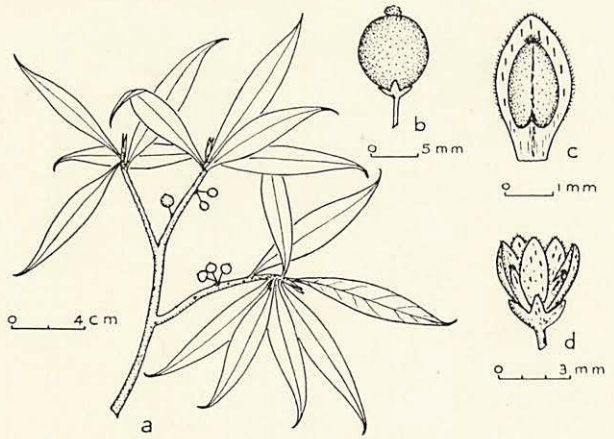

FIGURE 8.—*Myrsine Fosbergii:* **a**, habit; **b**, fruit; **c**, petal; **d**, flower.

Type: Oahu, *Hosaka and Fosberg 1903* (in Bishop Museum).

Distribution: found in the cloud zone of the native forest on Oahu.

Oahu: Koolau Range, head of Castle Trail, on wooded slope, rare, alt. 2,700 ft., May 31, 1937, *Hosaka and Fosberg 1903*; Waiahole Valley, Dec. 1919, *Rock*; Waiolani Mountains, Feb. 1919, *Bridwell*; Punaluu, July 4, 1935, *Degener 12544*.

The leaf shape is one of the major characters in this genus and this species is distinct from all other species in having a long acuminate tip.

This species is named for F. R. Fosberg, a student of Pacific flora.

10. Myrsine Fosbergii Hosaka var. **acuminata** (Wawra) Hosaka, comb. nov.

Myrsine Gaudichaudii A. de Candolle form *acuminata* Wawra, Flora **57**: 524, 1874.

Habit similar to the species, glabrous throughout; leaf blades 5-9 cm. long, 1.5-2.5 cm. wide, lance-acuminate, tip subacute to slightly emarginate; inflorescence a fascicle; flowers similar to the species; ovary with a short neck; drupe with sessile stigma.

Type: Hawaiian islands (Oahu ?) *Wawra 2370b* (in Vienna).

Distribution: found in the cloud zone of Oahu and Molokai.

Oahu: Punaliui [Punaluu], alt. 800 m., 1910, *A. Faurie 428*; Punaluu, Piggod Trail, windswept rain forest at summit, Jan. 17, 1932, *Degener and others 10211*; Koolauloa Mountains, between Punaluu and Kaipapau, May 8-15, 1919, *Forbes and C. J. Thompson; H. Mann and W. T. Brigham 614*; Waipio, Kipapa-Waiahole Divide, south ridge, Kipapa Gulch, alt. 2,750 ft., Sept. 18, 1932. *St. John 12078*; Kaala, Sept. 25, 1938, *Skottsberg and party 3563*; Kaau Crater, swamp forest, July 29, 1937, *Egler 37-316*; Koolau Range, divide between head of Kipapa Gulch and head of Uwau Gulch, on wooded slope, alt. 2,500 ft., May 30, 1937, *Hosaka and Fosberg 1876*; Koolau Range, divide between heads of Kawaiki [Kawaiiki] and Kaluanui Gulches, alt. 2,700 ft., May 30, 1937, *Hosaka and Fosberg 1900*.

Molokai: Kawela, Puu Alii, southwest slope, rain forest, alt. 4,200 ft., Dec. 31, 1938, *St. John and others 19938*; Manawai-Kahananui ridge, moist forest, alt. 600 m., Dec. 24, 1936, *Fosberg 13391*.

This variety differs from the species in the shape of the leaves and the shape of the ovary. *Myrsine Fosbergii* var. *acuminata* has leaves 5-9 cm. long, tip subacuminate while *Myrsine Fosbergii* has leaves 8-14 cm. long, tip long acuminate.

11. Myrsine kokeeana, spec. nov. (fig. 9).

Frutex ad 3 m. alta ramuli hirtelli, folia glabra ovato-lanceolata obovate vel elliptica 2-3.5 cm. longa 1-1.6 cm. lata, petioli 2-3 mm. longi, pedicelli 4-5 mm. longi.

Small branching shrub 2-3 m. tall, young branches usually brown hirtellous; leaf blades 2-3.5 cm. long, 10-16 mm. wide, glabrous, ovate-lanceolate, obovate, or elliptical, contracted at base, obtuse at apex, chartaceous to subcoriaceous, margin entire or distantly serrate; petioles 2-3 mm. long, glabrous or sparsely hirtellous; flowers in clusters on bracteate gemmules, in fascicles of 3-8; pedicels 4-5 mm. long, glabrous or sparsely pubescent; calyx lobes 5-6, ciliate; drupe about 6 mm. across, oval, covered with dark glandular dots; stigma subsessile, 1.5 mm. in diameter.

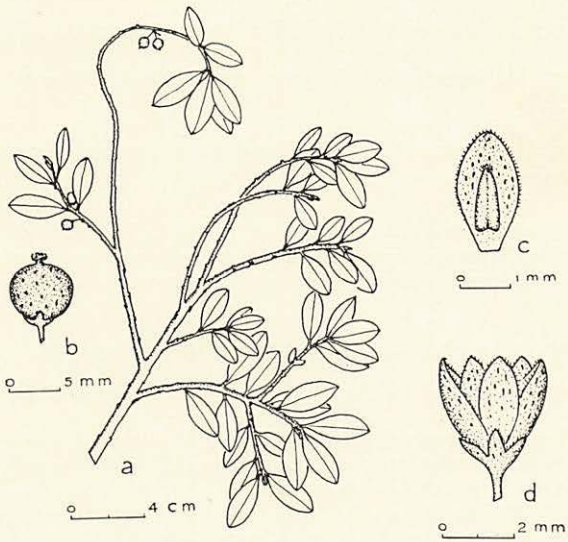

FIGURE 9.—*Myrsine kokeeana:* **a,** habit; **b,** fruit; **c,** petal; **d,** flower.

Type: Kauai, *Fosberg 12748* (in Bishop Museum).

Distribution: found in the moist forests of Kauai.

Kauai: Kanalo Huluhulu Ranger Station, moist open valley floor, alt. 1,100 m., Jan. 1, 1936, *Fosberg 12748*; Waimea, Kumuwela [Kumuweia] Ridge, moist forest, alt. 3,600 ft., Dec. 28, 1933, *St. John and others 13806*; Waimea Drainage Basin, west side, July 3 to Aug. 18, 1917, *Forbes 800.K*; Halemanu, Feb. 14-26, 1909, *Rock 1643.*

Myrsine kokeeana is closely related to *M. Knudsenii* but differs from it in having smaller leaves and slightly longer pedicels.

12. **Myrsine denticulata** (Wawra) Hosaka, comb. nov. (fig. 10).

Myrsine Sandwicensis A. de Candolle var. *denticulata* Wawra, Flora **57**: 526, 1874.

Suttonia sandwicensis (A. de Candolle) Mez, Pflanzenr. **9**(IV. 236): 336, 1902.

Myrsine Sandwicensis A. de Candolle var. *denticulata* Hillebrand, Fl. Haw. Is. 281, 1888.

Shrub 80-150 cm. tall, freely branching, leaves clustered toward the ends of the branches, young branches brown hirtellous; leaf blades 10-20 mm. long, 4-6 mm. wide, oblanceolate to elliptic-lanceolate, glabrous, dark green above, light beneath, conspicuously punctate, margin distinctly denticulate on the upper third, lower two thirds entire, edge often revolute, midrib prominent; petioles 1-1.5 mm. long, flattened, sparsely brown hirtellous; inflorescence among the leaves, on bracteate gemmules, single or in pairs; bracts minute, ovate, or lance-acuminate, ciliate; pedicels 1-2 mm. long, glabrous; calyx glabrous, lobes 0.8-1 mm. long, ovate, ciliate; petals 3-3.5 mm. long, 1.2-1.6 mm. wide, often united at base, glabrous, ciliate, with glandular markings, oblong-lanceolate; anthers glabrous except the penicillate apex; ovary ovate; stigma 0.5-0.7 mm. across; drupe 6-8 mm. in diameter, oval, young fruit thin-shelled, glandular.

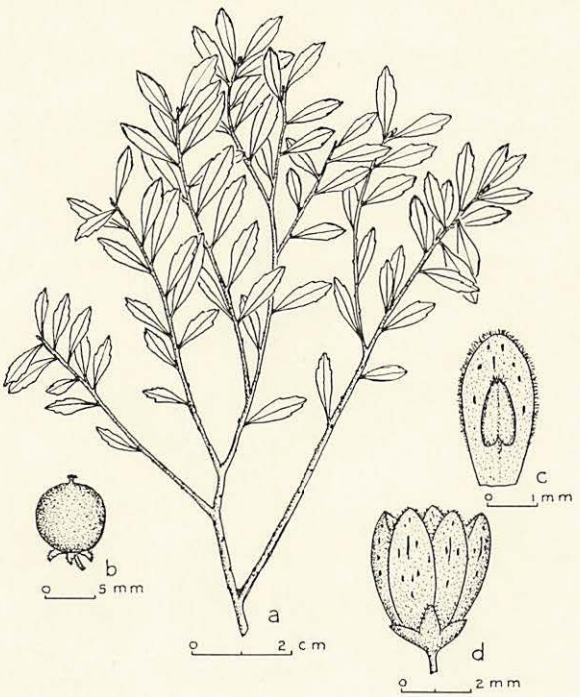

FIGURE 10.—*Myrsine denticulata:* **a**, habit; **b**, fruit; **c**, petal; **d**, flower.

Type: Kauai, *Wawra 2169* (in Vienna).

Distribution: found in the summit bogs of Kauai.

Kauai: summit of Waialeale, Sept. 1909, *Rock 4966*; Oct. 1916, *Rock*; above Waimea, Oct. 1911, *Rock 10359*; Waialeale, summit, Sept. 1909, *Rock 4964*; Na Pali Kona Forest Reserve, northwest end Alakai Swamp, edge of swamp, Dec. 27, 1930, *St. John and party 10789*; Na Pali Kona Forest Reserve, northwest end Alakai Swamp, Dec. 27, 1930, *St. John and party 10781*; Alakai Swamp, Waimea Drainage Basin, west side, July 3 to Aug. 18, 1917, *Forbes 1123.K*; same locality and date, *Forbes 1124.K*; Waimea, Alakai Swamp, Oct. 27, 1922, *Skottsberg 953*; Alakai Swamp, open bog, alt. 1,230 m., Jan. 3, 1936, *Fosberg 12762*; Kilohana, Aug. 13, 1938, *Skottsberg and party 2871*; Alakai, Aug. 16, 1938, *Skottsberg and party 2871*; Waialeale, alt. 4,000 ft., Aug. 23, 1938, *Skottsberg and party 3054*.

This species is related to *Myrsine Rockii* but it easily can be distinguished by the following characters: *Myrsine denticulata* has pubescent young branches; leaves always prominently dentate; flowers single or in pairs; pedicels 1-2 mm. long. *Myrsine Rockii* has glabrous young branches; leaves usually entire; flowers 2-6 in a cluster; pedicels 3-4 mm. long.

13. Myrsine Rockii (Degener and Hosaka) Hosaka, comb. nov. (fig. 11).

Myrsine sandwicensis A. de Candolle var. *lanceolata* Wawra, Flora **57**: 526, 1874.

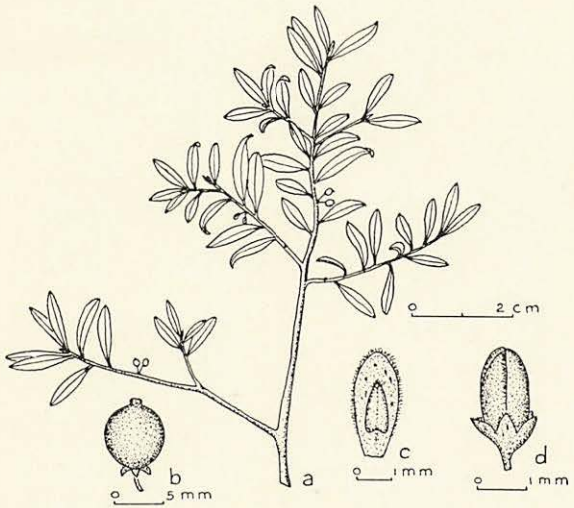

FIGURE 11.—*Myrsine Rockii:* **a**, habit; **b**, fruit; **c**, petal; **d**, bud.

Suttonia sandwicensis (A. de Candolle) Mez, Pflanzenr. **9**(IV. 236) : 336, 1902.

Suttonia punctata Léveillé, Repert. Sp. Nov. **10** : 443, 1912.

Suttonia apodocarpa Léveillé, Repert. Sp. Nov. **10** : 444, 1912.

Not *Suttonia lanceolata* (Wawra) Rock, Indigenous trees Haw. Is. 379, 1913.

Rapanea Rockii Degener and Hosaka, Flora Hawaiiensis, 1939.

Freely branching small shrub, branches glabrous; leaves 1-2.5 cm. long, 3-9 mm. wide, linear-lanceolate, oblanceolate or elliptic-lanceolate, glabrous, dark green above, light below, punctate, margin entire or often distantly dentate; petioles 1-2 mm. long; inflorescence 2-6 in a cluster, on bracteate gemmules; bracts small, ovate, ciliate, pedicels 3-5 mm. long, glabrous; calyx small, glabrous, ciliate; petals about 3 mm. long, glabrous, ciliate; drupe 6-8 mm. in diameter, oval, fleshy when mature, thin shelled when young, dark purple when ripe; stigma sessile.

Type: Kauai, *Wawra 2135* (in Vienna).

Distribution: found in swamps and edges of wet forests near the summit on the islands of Kauai and Molokai.

Kauai: Halemanu, Feb. 14-26, 1909, *Rock 1639*; Wahiawa, Aug. 1909, *Forbes 357.K*; Kokee, June 23, 1926, *Degener 10223*; Alakai Swamp, wet forest, alt. 1,200 m., Jan 3, 1936, *Fosberg 12772*; Kaholuamanu, Sept. 1909, *Rock 5651*; Waimea, Feb. 1910, *A. Faurie 446*; Waimea, alt. 1,000 m., Feb. 1910, *Faurie 447*; Halemanu, Feb. 14-26, 1909, *Rock 1640*; Kokee, Waineke Swamp, July 1, 1926, *Degener and H. Wiebke 3384*; central plateau, Sept. 1909, *Rock 5605*; Halemanu, Feb. 14-26, 1909, *Rock 2341*; ridge of Lehuamakanoi, Sept. 6, 1909, *Rock*; Kokee, June 1926, *Degener and Wiebke 3383*; Kokee, in woods, June 25, 1926, *Degener and Wiebke 3382*; Kaholuamanu, Oct. 21, 1916, *A. S. Hitchcock 15407*; Lehuamakanoe [Lehuamakanoi], Aug. 19, 1938, *Skottsberg and party 3024*.

Molokai: bog, Aug. 25, 1938, *Skottsberg and party 2699*.

Myrsine Rockii can be easily distinguished from *M. denticulata* by the glabrous branchlets, longer pedicels, and the larger number of flowers in a cluster.

In this species group there are two distinct types of leaf sizes and shapes; the extreme linear-lanceolate and the oblanceolate types. But when a large number of specimens are examined the characters overlap.

14. Myrsine alyxifolia Hosaka, nom. nov. (fig. 12).

Myrsine Sandwicensis A. de Candolle var. *buxifolia* Wawra, Flora **57** : 526, 1874.

Suttonia sandwicensis (A. de Candolle) Mez, Pflanzenr. 9(IV. 236) : 336, 1902.

Tree 4-6 m. tall, much branching, branches slender, young branches glabrous to slightly brown puberulent; leaf blades 1.5-2.8 cm. long, 6-12 mm. wide, chartaceous to subcoriaceous, punctate, midrib pronounced, veins inconspicuous, margin entire, thickened, usually slightly recurved, upper surface wrinkled when dry, glabrous; petioles 1.5-5 mm. long, glabrous or slightly brown-puberulent; inflorescence on naked stem just below leaves or among the lower leaves, on bracteate gemmules, 4-6 together; bracts minute, pubescent, ciliate; pedicels 4-5 mm. long, glabrous or often slightly puberulent; flowers 3-3.5 mm. long, glabrous; calyx lobes 0.8-1.2 mm. long, acute, glabrous, ciliate, covered with dark glands; corolla glabrous, covered with dark linear glands, ciliate; anthers 1.8-2.2 mm. long, attached 0.3-0.4 mm. above the base of the petals, glabrous except for the penicillate apex; ovary oblong, glabrous; stigma 0.7-0.8 mm. across, sessile; drupes 5-7 mm. in diameter, oval, glandular when young, fleshy when mature, stigma broadly sessile, 1.5-2 mm. across.

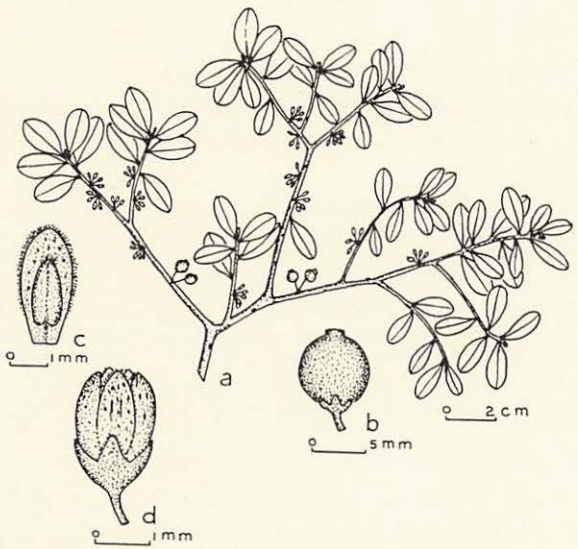

FIGURE 12.—*Myrsine alyxifolia:* **a,** habit; **b,** fruit; **c,** petal; **d,** flower.

Type: Kauai, *H. Wawra 2105* (in Vienna).

Distribution: found in the high, wet mountains of Kauai.

Kauai: Waimea Drainage Basin, west side, July 3 to Aug. 18, 1917, *Forbes 968.K*; Halemanu, Feb. 14-26, 1909, *Rock 1658, 1532, 1650, 1654, 2353*; Na Pali Kona Forest Reserve, Nualolo Trail, alt. 2,000-3,750 ft., Dec. 28, 1930, *St. John and party 10822*; Waimea, Milolii Ridge, moist woods, alt. 2,800 ft., Dec. 27,

1933, *St. John and Fosberg 13752*; Halemanu, *Wawra 2105*; Na Pali Kona Forest Reserve, Waimea, Mohihi River, open woods, alt. 3,500 ft., Feb. 12, 1939, *St. John and party 20001.*

Oahu: Waianae Mountains, Pohakea Pass, Aug. 5, 1936, *C. S. Judd 53.* The label is not in the collector's handwriting and it is questionable whether this plant was collected on Oahu. All the specimens come from the high, wet mountains of Kauai. Pohakea Pass is not a suitable habitat to support this species. I spent a day in this region but found no specimen of *M. alyxifolia.*

This species is distinct from related species in having large sessile stigmas and characteristic leaves.

15. Myrsine sandwicensis A. de Candolle (fig. 13).

Myrsine Sandwicensis A. de Candolle, Ann. Sci. Nat. II Bot. **16**: 85, 1841.

Myrsine Sandwicensis A. de Candolle, Wawra, Flora **57**: 526, 1874.

Myrsine Sandwicensis A. de Candolle var. *grandifolia* Wawra, Flora **57**: 526, 1874.

Myrsine Vanioti Léveillé, Repert. Sp. Nov. **10**: 157, 1911.

Suttonia sandwicensis (A. de Candolle) Mez, Pflanzenr. **9** (IV. 236): 336, 1902.

Rapanea sandwicensis (A. de Candolle) Degener and Hosaka, Flora Hawaiiensis, 1939.

Tree 4-7 m. tall, freely branching, spreading; leaf blades 12-30 mm. long, 5-11 mm. wide, oblanceolate to obovate, glabrous on both surfaces, dark green above, light below, veins inconspicuous, margin entire, apex emarginate; petioles 0.5-4 mm. long, glabrous; inflorescence among the leaves, few flowered, on bracteate gemmules; bracts small, ciliate; pedicles 3-7 mm. long; calyx 4-6 lobed, glabrous, ciliate, small, petals 3-3.5 mm. long, glabrous, ciliate; anther glabrous except for the penicillate apex; ovary glabrous; drupes globose, fleshy and dark purplish black when ripe, 6-8 mm. in diameter.

Type: Sandwich (Hawaiian) Islands, Gaudichaud specimen collected in 1829 (in Geneva).

Distribution: found in the forests of Oahu and Hawaii.

Oahu: Koolau Range, Manoa-Palolo Ridge, wooded ridge, alt. 2,000 ft., Nov. 3, 1935, *R. Usinger*; Kahuauli Ridge, alt. 500-750 m., Dec. 17, 1930, *E. Christophersen and E. P. Hume 1407*; Punaluu, Dec. 24-29, 1908, *Rock 635*; Punaluu, Feb. 5, 1909, *Rock 1311*; Waiakane Valley, Jan. 22, 1909, *Rock 1172;* Wahiawa gulches, April 9, 1911, *Forbes 1704.O*; Kaala Range, Makaha Valley, Feb. 12-19, 1909, *Forbes*; Honouliuli, Waianae Mountains, Puu Kaua, alt. 1,500-3,113 ft., Nov. 6, 1932, *N. H. Krauss*; Waikani Mountains, Jan. 23, 1909, *Rock 1271*; Mount Olympus, peak, May 2, 1920, *D. W. Garber 406*, Waianae Uka, Mount Kaala, alt. 4,000 ft., Feb. 2, 1930, *Hosaka 142*; Punaluu, Dec. 24-29,

1908, *Rock 674*; Punaluu mountain, on top of ridge between Hauula and Laie, Dec. 24-28, 1908, *Rock 824*; April 10, 1909, *Forbes; Mann and Brigham 525*; Waikane Mountains, Jan. 23, 1909, *Rock 1269*; Waianae Uka, Waianae Mountains, Puu [Mount] Kaala, moist woods, alt. 4,000 ft., Nov. 30, 1930, *St. John 10647*; ridge on right side of head of Makua Valley, forested ridge, June 26, 1932, *Degener and others 10221*; northwest ridge, Kalihi Valley, wooded ridge, alt. 1,200 ft., Jan. 12, 1932, *Hume 467*; top of Mount Kaala, wet forest, alt. 1,200 m., April 3, 1931, *Christophersen, Wilder, and Hume 1706*; Puu Kaua, alt. 2,000 ft., Nov. 6, 1932, *A. Suehiro*; Waipio, south ridge, Kipapa Gulch, alt. 2,500 ft., Sept. 18, 1932, *Hosaka 701*; top of Kaala, wet forest, alt. 1,200 m., May 10-15, 1931, *Christophersen and Hume 1784*; Honolulu, Wilhelmina Rise, forest, Nov. 11, 1931, *Degener 10201*; crest of Koolau, head of Kuliouou Valley, July 13, 1937, *F. E. Egler 37-114*; Honouliuli, ridge above Kupehau, Waianae Mountains, moist forest, alt. 750 m., June 30, 1935, *Fosberg 10978*; Waianaeuka, Waianae Mountains, summit of Puu Kaala, wet forest, alt. 1,230 m., Jan. 8, 1933, *Fosberg 9123*; *Hillebrand and Lydgate*; second ridge south of Pohakea Pass, forest, alt. 500-750 m., March 19, 1931, *Christophersen, Wilder, and Hume 1651*; Honouliuli, on ridge, Puu Kaua, Waianae Mountains, alt. 2,500-

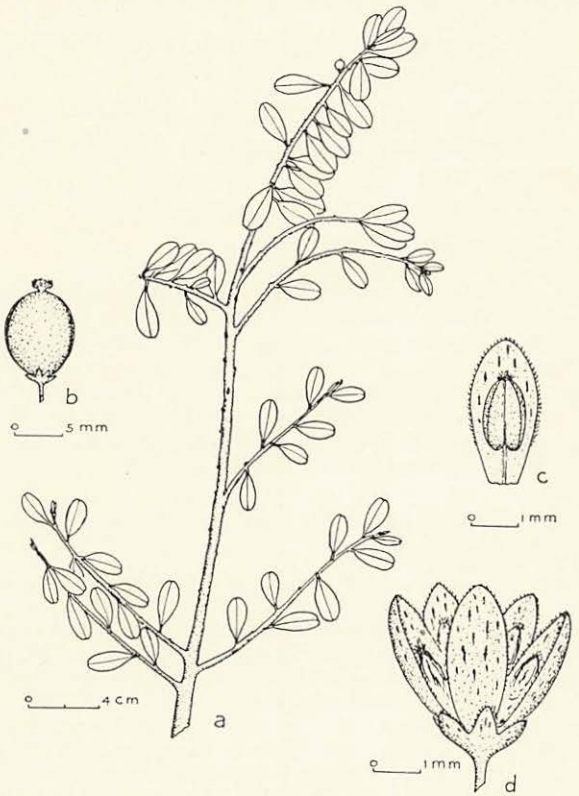

FIGURE 13.—*Myrsine sandwicensis:* a, habit; b, fruit; c, petal; d, flower.

2,800 ft., Nov. 6, 1932, *St. John 12200*; Koolau Range, Puu Konahuanui, top of wet ridge, alt. 3,000 ft., Oct. 20, 1935, *Usinger*; Konahuanui, April 16, 1909, *Forbes 1304*; Mauna Kapu, exposed summit ridge, Dec. 16, 1935, *Degener and others 10125, 10126*; east ridge of Kaipapau Valley, in rain forest, July 7, 1935, *Degener and others 10128*; Waianae Mountains, Palehua, alt. 750 m., Aug. 23, 1922, *Skottsberg 310*; Koolau Range, head of Kawainui Gulch, on wooden slope, alt. 2,600 ft., May 31, 1937, *Hosaka and Fosberg 1913*; Koolau Range, divide between head of Poamoho Gulch and head of Punaluu Gulch, on wooded slope, alt. 2,500 ft., May 30, 1937, *Hosaka and Fosberg 1892*; Kaimuki, crest of Wilhelmina Rise trail, in ohia zone, Sept. 5, 1937, *Egler 37-357*; southeast corner of Makua Valley, Sept. 27, 1932, *Degener and C. S. Judd 10220*; Koolau Range, Aiea, C.C.C. trail, rain forest, Dec. 6, 1937, *Degener 12162*; Koolau Range, divide between head of Kawaiiki and Kaluanui gulches, on wooded slope, alt. 2,700 ft., May 30, 1937, *Hosaka and Fosberg 1899*; Konahuanui, alt. 1,000 m., May 2, 1910, *Faurie 448*; Waianae Mountains, Puu Kaua, Nov. 6, 1932, *Suehiro*.

Hawaii: between Halealoha [Kalaeeha] and Puu Oo, June 11, 1915, *Forbes 814.H*; Kohala, June 1910, *Rock 8397*; Mount Hualalai, above Moanuiahea, June 10, 1909, *Rock 3822*; Makaopuhi Crater, wet woods, Feb. 22, 1930, *Degener 10200*; near Makaopuhi Crater, light woods, Oct. 13, 1929, *Degener 10204*; north of Alika lava flow, in woods, Aug. 26, 1926, *Degener and Wiebke 3376*; near Makaopuhi, Kilauea Crater Road, alt. 3,000 ft., May 1932, *A. Meebold*; Kilauea, Chain of Craters, Napau trail, Dec. 20, 1931, *St. John and others 11224; W. A. Bryan*; Kona, Honomalino, July 22, 1911, *Forbes 343.H*; Kona, June 30, 1911, *Forbes 280.H*; Kohala Mountains, Kawaihae, Puu Ohia, alt. 4,800 ft., *St. John and Hosaka 11491*; (possibly) on Oahu, *Wawra 2381*; Mauna Loa, Kau, Kahuku-Ainapo trail, in wooded *kipuka*, alt. 4,500 ft., July 28, 1936, *Hosaka 1465*; north of Alika lava flow, in woods, Aug. 26, 1926, *Degener and Wiebke 3376*; slope of Hualalai, forest on aa flow, alt. 1,200 m., Sept. 23, 1922, *Skottsberg 640*; east of Kilauea Iki, in scrub forest, July 17, 1926, *Degener 3379;* Puna, Napau Crater, ohia woods, alt., 3,000 ft., Dec. 20, 1937, *St. John and others 18422*.

16. Myrsine sandwicensis A. de Candolle var. **mauiensis** Léveillé, Repert. Sp. Nov. **10**: 157, 1911.

Suttonia mauiensis Léveillé, Repert. Sp. Nov. **10**: 444, 1912.

Habit similar to the species; petiole usually 3-8 mm. long; ovary and young fruit glandular puberulent.

Type: Maui, *Faurie 449* (in Bishop Museum).

Distribution: found in the forests of Maui, Lanai, Molokai, and Oahu.

Maui: Yao [Iao] Valley, Aug. 1909, *Faurie 449*; above Hana, July 5, 1920, *Forbes 2671.M*; west Maui, Haelaau, above Honokowai, wooded ridge, alt. 4,200 ft., Feb. 6, 1930, *St. John 10232*; May 7, 1920, *Forbes 2262.M.*; east Maui, Olinda, Kula Flume line, swampy woods, alt. 4,300 ft., Feb. 12, 1930, *St. John 10322*; near Puu Anu, open forest, July 12, 1927, *Degener and Wiebke 3391*; west Maui, Haelaau-Puu Kukui trail, rain forest, alt. 4,300 ft., Dec. 18,

1928, *G. R. Ewart III 84*; west Maui, Haelaau, rain forest, alt. 3,300 ft., Dec. 19, 1928, *G. R. Ewart III 93*; Puu Kukui, Oct. 1935, *Meebold (Degener 10230)*.

Lanai: mountain east end of island, June 1913, *Forbes 230.L.*; Lanaihale, Feb. 21, 1914, *G. C. Munro 296*; Maunalei, upper branch, Feb. 4, 1914, *Munro 37*; Mahana, main ridge, July 25, 1910, *Rock 8074*; Lanaihale, March 19, 1914, *Munro*; Lanaihale, April 11, 1916, *Munro*; between Maunalei drainage and Hauola drainage, ridge below Puu Aalii, moist brushy ridge, alt. 900 m., Nov. 30, 1935 *Fosberg 12485*; ridge northwest Lanaihale, moist forest, alt. 950 m., Nov. 28, 1935, *Fosberg 12389*; Pawili, Lanaihale, wind-swept crest, alt. 3,400 ft., April 9, 1938, *St. John and Eames 18779*; Kaohai, head of Awehi Gulch, moist forest at summit, alt. 3,500 ft., April 15, 1938, *St. John and Hosaka 18856*.

Molokai: Pelekunu, above Kamolo [Kamola], April 1910, *Rock 7020;* Kawela, Kawela Gulch, thicket on ridge, alt. 3,800 ft., Dec. 30, 1938, *St. John and others 19883*.

Oahu: head of Kalihi Valley, open forest, alt. 300-500 m., Jan. 25, 1931, *Christophersen, Wilder, and Hume 1493*.

17. Myrsine pukooensis (Léveillé) Hosaka, comb. nov. (fig. 14).

Suttonia pukooensis (*Pukoensis*) Léveillé, Repert. Sp. Nov. 10: 444, 1912.

Tree 5 m. tall, glabrous, stems thick at apex, leaves terminal; leaf blades 10-15 cm. or more long, 3-5.5 cm. or more wide, obovate, oblanceolate, or elliptic-lanceolate, apex obtuse to retuse, base obtuse to subtruncate glabrous on both sides, margin entire, slightly thickened, marginal nerve marginal, prominent on the lower surface, grooved on the upper surface, midrib coriaceous; petioles 1-3 mm. long, broad, glabrous; flowers rameal, below the leaves, on bracteate gemmules, in fascicles of about 10; bracts 1.2-3.2 mm. long, 1.5-2 mm. wide, ovate to lanceolate, acute to rounded at apex, sparsely glandular pubescent inside, sparsely ciliate, brownish; pedicels 4-10 mm. long, glabrous; calyx small, lobes about 1.2 mm. long, punctate, ciliate; petals about 4 mm. long, oblanceolate, punctate, ciliate; anthers about 2.2 mm. long, penicillate at apex, base about 1 mm. from base of petal; ovary glabrous, with fimbriate stigma, sessile, capitate; drupe about 8 mm. across, oval, glabrous, with sessile to very slightly raised stigma.

Type: Molokai, *Faurie 426* (in Bishop Museum).

Distribution: found in the rain forests of Kauai, Oahu, Molokai, Maui, and Lanai.

Kauai: Halemanu, Feb. 14-26, 1909, *Rock 2209*.

Oahu: Wahiawa, north fork of Kaukonahua Gulch, May 15, 1909, *Rock and Hosmer 3060*; Koolau Mountains [Range], ridge south of South Opaeula Gulch, moist woods, alt. 1,500 ft., Sept. 24, 1933, *St. John 13349*; Waipio, ridge south of Kipapa Gulch, wooded slope, alt. 1,200 ft., Oct. 11, 1929, *St. John 10031*; Punaluu, Dec. 24, 1908, *Rock 488*; Konahuanui, Jan. 16, 1909, *Forbes 1029*; Koolau Range, South Opaeula Gulch, rain forest, alt. 1,500 ft., Sept. 24, 1933, *B. Min*; Paalaa, Koolau Range, ridge south of South Opaeula Gulch, moderate forest, alt. 1,600 ft., Sept. 24, 1933, *H. Morley 12*; Paalaa, Koolau Range, ridge south of South Opaeula Gulch, alt. 1,550 ft., Sept. 24, 1933, *F. Kitamura*; Kalihi Valley, Oct. 22, 1908, *Forbes*; mountain southeast of Kahana Bay, dense rain forest at summit, July 3, 1932, *Degener 10218*; Pauoa Valley,

July 7, 1909, *Rock 973*; Mount Olympus, Sept. 10, 1912, *Rock 10358*; Konahuanui, Jan. 7, 1909, *Rock 1077*; Koolau Range, Aiea, C.C.C. trail, rain forest, Dec. 6, 1937, *Degener 12163*; southeast slope of [Mount] Kaala, forest, Dec. 19, 1937, *Degener and others 12037*; South Opaeula Ridge, Sept. 25, 1932, *Suehiro;* Koolau Range, Kawailoa Forest Reserve, in moist forest, alt. 2,000 ft., July 3, 1938, *Hosaka 2499*.

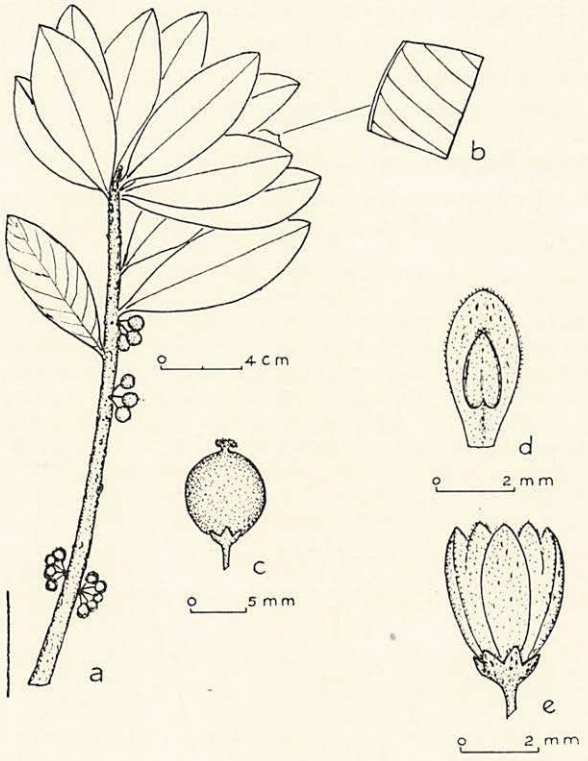

FIGURE 14.—*Myrsine pukooensis:* **a**, habit; **b**, section of leaf enlarged; **c**, fruit; **d**, petal; **e**, flower.

Molokai: Pukoo, 1910, *Faurie 426*; Pukoo, 1910, *Rock*; head of Wailau valley, trail up Waiakeakua-Waiokeela Ridge, wet forest, alt. 300 m., Dec. 29, 1936, *Fosberg 13475*; head of Wailau Valley, top of cliff, rain forest, alt. 900 m., Dec. 23, 1936, *Fosberg 13373*; Kalae, June 1912, *Forbes 55.MO*; Kaluaaha, rain forest on ridge, alt. 2,300 ft., Dec. 28, 1938, *St. John and others 19856*.

Lanai: Lanaihale, Dec. 26, 1913, *Munro 275*; Lanaihale, Dec. 26, 1913, *Munro 206*; Koele, on drier fore hills, July 1910, *Rock 8034*; Haalelepaakai Ridge, moist forest, alt. 950 m., Nov. 29, 1935, *Fosberg 12442*; Kaiholena Gulch, near head, wet wooded slopes, alt. 800 m., Dec. 3, 1935, *Fosberg 12591*; Kaohai, Haalelepaakai, moist forest, alt. 3,300 ft., April 9, 1938, *St. John and Eames 18785*.

Maui: Olowalu Valley, May 17, 1920, *Forbes 2411.M*; west Maui, Haelaau-Puu Kukui trail, alt. 4,000 ft., Dec. 19, 1928, *G. R. Ewart III and Munro 103A*; Nakalalua, alt. 4,300 ft., Feb. 6, 1930, *St. John 10243*; west Maui, Aug. 1, 1934, *Skottsberg and party 2763.*

On the type specimen this species is recorded as *Myrsine Pukoensis* Léveillé, but in the treatment Léveillé (Repert. Sp. Nov. **10**: 444) has printed it as *Suttonia pukooensis* Léveillé. In both registrations the same specimen, A. Faurie 426, is cited. I have selected *Suttonia pukooensis* as the official registration.

18. Myrsine Degeneri, spec. nov. (fig. 15).

Arbor 4-7 m. alta ramuli densi, folia glabra elliptico-lanceolata subcoriacea 12-24 cm. longa 6-9 cm. lata, petioli 2-4 mm. longi, pedicelli 6-13 mm. longi, stipa 0.8-1.2 mm. longa.

Branching tree 4-7 m. tall, glabrous, branches about 6 mm. thick at apex; leaf blades 12-24 cm. long, 6-9 cm. wide, glabrous, light green on both surfaces, broadly elliptic-lanceolate to slightly oblanceolate, acute at apex, obtuse at base, subcoriaceous, midrib prominent, slightly grooved above, lateral veins far apart, marginal nerve close to margin, margin entire, slightly thickened; petioles 2-4 mm. long, thick; inflorescence rameal, below the leaves, on bracteate gemmules, in fascicles of 4-10; bracts minute, ovate to lanceolate, brownish, glabrous to slightly glandular pubescent, often ciliate toward apex; pedicels 6-13 mm. long, glabrous, slender; flowers 3-3.5 mm. long; calyx lobes ciliate; petals ciliate, glandular; ovary glabrous; drupes 6-8 mm. in diameter, oval, glabrous, longitudinally ridged; stigma conspicuously raised on 0.8-1.2 mm. long stipe.

Type: Oahu, *Hosaka and Fosberg 1911* (in Bishop Museum).

Distribution: known only from the rain forests of Koolau Range, Oahu.

Oahu: Koolau Range, divide between head of Kawaiiki and Kaluanui gulches, on wet wooded slope, alt. 2,800 ft., May 30, 1937, *Hosaka and Fosberg 1898*; Koolau Range, head of Kawainui Gulch, on wooded slope, alt. 2,600 ft., May 31, 1937, *Hosaka and Fosberg 1907*; Waipio, Kipapa Gulch, exposed wet ridge, alt. 850 m., Aug. 6, 1933, *Fosberg 9720*; Koolau Range, Kipapa Gulch, on wet ridge, alt. 2,800 ft., Aug. 6, 1933, *Hosaka 1149*; Koolau Range, head of Kawainui Gulch, on wooded slope, alt. 2,600 ft., May 31, 1937, *Hosaka and Fosberg 1911*; Waipio, Kipapa Gulch, south ridge, alt. 2,500 ft., *Hosaka 691;* Punaluu, Dec. 24-29, 1908, *Rock 473*; divide between head of Kipapa and Uware [Uwau] Gulches, on wet wooded slope of ridge, alt. 2,600 ft., *Hosaka and Fosberg 1873*; Koolau Range, ridge at head of Kahana Valley, on wooded slope, alt. 2,300 ft., May 30, 1937, *Hosaka 1884.*

This species is related to *Myrsine Fernseei* and *Myrsine pukoensis* but differs from them in several characters and can be easily distinguished.

M. Fernseei has irregular submarginal nerve, narrow leaves about 6.5 cm. wide, sessile capitate stigma, smooth drupes.

M. pukooensis has leaves with very close parallel veins, thick stems; smooth drupes, sessile to subsessile stigma.

M. Degeneri has broadly elliptic-lanceolate leaves, stigma conspicuously raised on a distinct stipe, drupes rough.

M. Degeneri, which is peculiar to the central Koolau Range, Oahu, is named in honor of Otto Degener who has kindly loaned me all of his large collection of Hawaiian *Myrsine.*

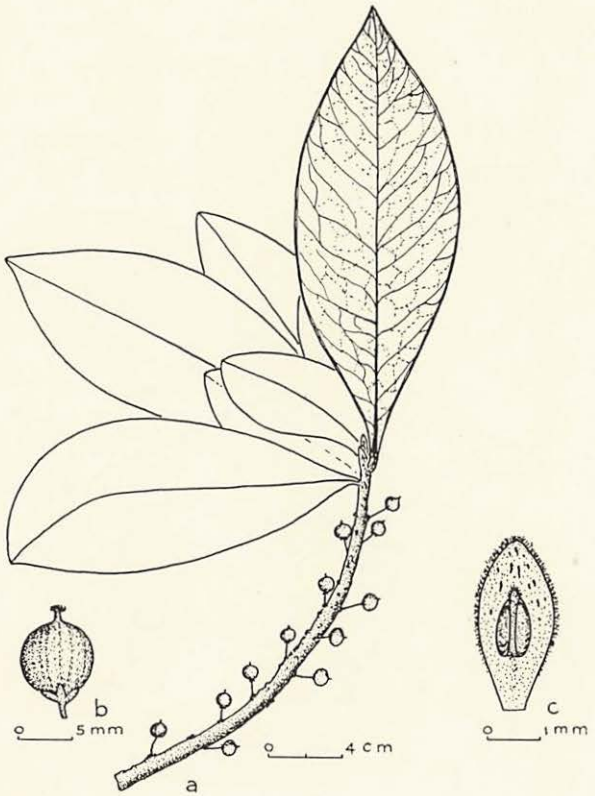

FIGURE 15.—*Myrsine Degeneri:* a, habit; b, fruit; c, petal.

19. Myrsine lanaiensis Hillebrand (fig. 16).

Myrsine lanaiensis Hillebrand, Fl. Haw. Is. 281, 1888.

Suttonia lanaiensis (Hillebrand) Mez, Pflanzenr. 9 (IV. 236): 336, 1902.

Suttonia lanaiensis (Hillebrand) Mez var. *coriacea* Rock, Indigenous trees Haw. Is. 369, 1913.

Suttonia volcanica Rock, Indigenous trees Haw. Is. 371, 1913.

Suttonia volcanica var. *lavarum* Rock, Indigenous trees Haw. Is. 371, 1913.

Rapanea volcanica (Rock) Degener and Hosaka, Flora Hawaiiensis, 1939.

Rapanea lanaiensis (Hillebrand) Degener and Hosaka, Flora Hawaiiensis, 1939.

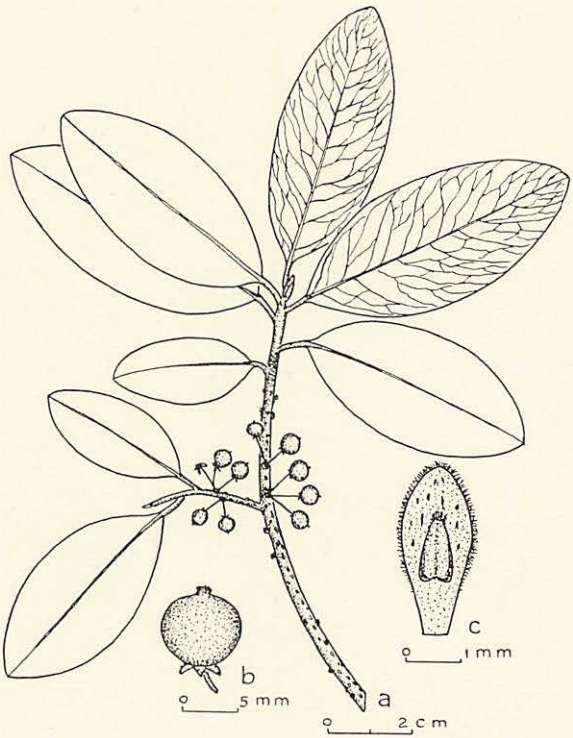

FIGURE 16.—*Myrsine lanaiensis:* a, habit; b, fruit; c, petal.

Trees 3-5 m. tall, glabrous, branches conspicuously covered with lenticels; leaf blades 4-13 cm. long, 2-6 cm. wide, elliptic, ovate-oblong, or elliptic-lanceolate, apex acute to round, base subacute to obtuse, glabrous on both sides, punctate, young leaves membraneous to chartaceous, old leaves coriaceous, margin entire, midrib prominent, veins conspicuous, marginal nerve irregular; petioles 5-18 mm. long, glabrous; inflorescence 2-10 or more-flowered, clustered

on raised gemmules; pedicels 5-10 mm. long, glabrous; floral bracts small, ciliate, sparsely pubescent inside; calyx small, lobes ciliate; petals 3-4 mm. long, united or free, beset with a few dark brown irregular oval to lanceolate glands; anther glabrous, penicillate at apex; stigma sessile to subsessile; ovary ovate, glabrous; dupes depressed-globose, obovate, 6-8 mm. in diameter, smooth, purplish black when ripe.

Type: Lanai, Hillebrand (in Berlin).

Distribution: found in the lower forests on the islands of Kauai, Lanai, Oahu, Maui, and Hawaii.

Lanai: July 1870, *Hillebrand*; Kaiholena, July 27, 1910, *Rock 8027*; Keoneheehee, xerophytic forest, alt. 500 m., Dec. 1, 1935, *Fosberg 12538*; Kaohai, Waiakeakua, thicket in gulch, alt. 2,900 ft., April 15, 1938, *St. John and Hosaka 18901*; Kaa, July 27, 1910, *Rock 8078*; Mahana, Dec. 9, 1915, *Munro 207*; Mahana, April 20, 1915, *Munro 421*; west end, dry forests, June 1913, *Forbes 164.L*; Kaa, May 12, 1915, *Munro 445*; Kaa, March 10, 1914, *Munro 420*; Sept. 1917, *Forbes 295.L*; Kaa, Dec. 3, 1915, *Munro 330*; Kanepuu, alt. 1,700 ft., Aug. 21, 1929, *Munro 947*; Sept. 1917, *Forbes 349*; mountain near Koele, June 1913, *Forbes 15.L.*

Kauai: Kipu, Haupu, Hoary Head Mountains, steep wooded slope, alt. 1,000 ft., Dec. 25, 1933, *St. John and others 13624*; Haiku, Laaukahi, woods on precipitous slope, alt. 1,300 ft., Dec. 22, 1933, *St. John and Fosberg 13491*; Nualolo, July 18, 1932, *Swezey (Degener 10214)*; Halemanu, Feb. 14-26, 1909, *Rock 1662*; Halemanu, Milolii gorge, Feb. 14-26, 1909, *Rock 2355*; Na Pali Kona Forest Reserve, Nualolo Trail, in woods, alt. 2,000-3,750 ft., Dec. 28, 1930, *St. John and others 10818*; Halemanu, Feb. 14-26, 1909, *Rock 1567*; Kokee, in woods, June 26, 1926, *Degener and Wiebke 3390*; Nawiliwili, half mile southwest of Hokunui, open forest, Jan. 5, 1940, *Degener and Ordonez 12599.*

Oahu: south of Puu Manawahua, dry grassy slope, Nov. 23, 1935, *Degener and others 10225*; head of Kawaihapai Gulch, dry slope, alt. 600 m., Feb. 21, 1937, *Fosberg 13601*; Nanakuli Valley below Mauna Kapu, dry grassy slope, Dec. 1, 1935, *Degener and others 10233*; Halona-Lualualei Forest Reserve, Waianae Mountains, Pohakea Pass, upper forest, alt. 1,900 ft., May 12, 1933, *St. John 13141*; second ridge south of Pohakea Pass, dry slopes, alt. 350-500 m., March 19, 1931, *Christophersen and others 1640, 1646*; Waianae Mountains, Mokuleia, Pahole Gulch, dry lantana brush, alt. 420 m., April 11, 1936, *Fosberg 13024;* Waianae Mountains, Kealia, in wooded gully slope, alt. 1,500 ft., Feb. 2, 1936, *Hosaka 1317*; overlooking Kahanahaiki Valley, decadent forest, Jan. 16, 1938, *Degener, Hosaka, and Salucop 12039*; Waianae Mountains, Honouliuli, Puu Kona, lower woods, alt., 1,500 ft., Feb. 27, 1938, *St. John 18685*; Palikea, east side, March 1, 1936, *Degener 12545.*

Maui: above Makawao, Sept. 1910, *Rock 8533*; March 2, 1920, *Forbes 1815.M*; Ulupalakua, Makawao, in dry place, alt. 2,200 ft., April 13, 1937, *Hosaka 1804*; Pakihi, mountainward, March 25, 1920, *Forbes 2063.M*; east Maui Auwahi lava field, Nov. 1910, *Rock 8678*; 1913, *G. P. Wilder*; near Puu Anu, dry open forest, July 12, 1927, *Degener and Wiebke 3392.*

Hawaii: 21 miles from Waimea, toward Kona, open woods, Aug. 18, 1926, *Degener 3377*; Hualalai, Puuwaawaa, on dry aa lava, Sept. 17, 1936, *Hosaka 1610*; 17 miles north of Kohala toward Waimea, in woods, July 31, 1926, *Degener 3374*; Hualalai, alt. 5,000 ft., Nov. 1935, *Meebold (Degener 10226)*;

Hualalai, alt. 5,000 ft., May 1932, *Meebold (Degener 10216)*; 20 miles from Waimea toward Kona, in aa desert, Aug. 17, 1926, *Degener 3380*; Kona, Kanehaha, June 23, 1911, *Forbes 242.H*; Puuwaawaa, Huehue, Aug. 1917, *Rock 17164*; north Kona, Puuwaawaa, alt. 660 m., Sept. 26, 1922, *Skottsberg*; Waimea-Kohala road, west slope Kohala Mountains, dry open forest, alt. 1,015 m., Sept. 2, 1933, *Fosberg 10180*; Manuka Mauka, wooded *kipuka*, alt. 1,000 ft., Dec. 26, 1931, *St. John and others 11344*; Kona, Kapua, July 25, 1911, *Forbes 367.H*; Puuwaawaa, June 8-14, 1911, *Forbes 53.H*; Puuwaawaa, foot of Hualalai, June 7, 1923, *Munro*; Kawaihae Uka, June 9, 1923, *Munro*; North Kona, Huehue, Aug. 1917, *Rock 12969*; Mauna Loa, alt. 5,300 ft., Feb. 13, 1912, *Rock 10230*; Hualalai, Puuwaawaa, dry place in aa lava flow, alt. 3,000 ft., Sept. 17, 1936, *Hosaka 1615*; slope of Hualalai, between Huehue and Puuwaawaa, open woods, Aug. 24, 1926, *Degener and Wiebke 3375*; north Kona, Kailua, southern slope of Hualalai, in dry aa forest, alt. 5,000 ft., April 25, 1938, *Hosaka 2011*; Hualalai, *Degener 20123*.

On the type specimen of *Myrsine lanaiensis* there are chartaceous and coriaceous leaves. The young leaves are thin and papery while the older leaves are leathery. Rock (Indigenous trees Haw. Is. 369, 1913) described a new variety, *Suttonia lanaiensis* variety *coriacea*, basing the character probably on the texture of the leaves as contrasted to Hillebrand's description (Fl. Haw. Is. 281, 1888) of the leaf texture of the species. Hillebrand says, " . . . membranous to chartaceous . . . " Rock's type of the variety is similar to Hillebrand's type. There is no difference between the species and the variety. The type of variety *coriacea* has smaller leaves than those of the species but presumably the difference is only ecological. Typical *coriacea* leaves are found on an otherwise typical *lanaiensis* specimen.

Rock (Indigenous trees Haw. Is. 371, 1913) describes *Suttonia volcanica* and *S. volcanica* var. *lavarum*, from Hawaii and Maui respectively. He considers the major differences of the species from other species of *Myrsine* (*Suttonia*) to be the size of the fruits and texture and venation of the leaves. He says, "In texture and venation of leaf, shape and size of fruit, as well as general aspect, it is almost identical with *Suttonia volcanica*. . . "

The *M. lanaiensis* and the *M. volcanica* groups overlap and I have found no definite character to separate them. While there are two extreme types of *lanaiensis* and *volcanica*, they are bridged by variable specimens. The *lanaiensis* group seems to have leaves with less conspicuous veins than the *volcanica* group, but it is impossible to separate them. The type specimen of *Myrsine* (*Suttonia*) *volcanica* has immature fruits, hence the small size. The shape of the young ovaries of *Myrsine (Suttonia) lanaiensis* and *Myrsine (Suttonia) volcanica*

are slightly different but lose the characters with maturity and cannot be distinguished even at young fruit stage.

20. **Myrsine lanaiensis** Hillebrand var. **oahuensis** Hosaka, var. nov.

Folia lanceolata, petioli 2-7 mm. longi.

Habit similar to the species; lenticels not conspicuous; leaves lanceolate, acute at apex, abruptly contracted at base; petioles 2-5 mm. (rarely 6-7 mm.) long; stigma 0.8-1.2 mm. across.

Type: Oahu, *Forbes 1155.O* (in Bishop Museum).

Distribution: found in the semi-moist forests of Oahu.

Oahu: Mount Kaala, Makaha Valley, Feb. 12-19, 1909, *Forbes 1154.O, 1155.O*; west side of Makaha Valley, dense forest, July 21, 1935, *Degener and others 10231*; Waianae Mountains, Keaau-Makua Forest Reserve, Makua, on wooded, semi-moist gully, alt. 1,700 ft., Jan. 13, 1938, *Hosaka and Degener 1934;* Waianae Mountains, Mokuleia, C.C.C. trail across head of Kapuna Valley, moist forest, alt. 600 m., April 11, 1936, *Fosberg 13046*; Makaha Valley, Dec. 1935, *Meebold (Degener 10227)*.

This new variety is most closely related to *Myrsine lanaiensis* but it differs in having shorter petioles, 2-5 mm. long; usually lanceolate leaves; much larger stigma of ovary and fruit.

21. **Myrsine Fernseei** (Mez) Hosaka, comb. nov. (fig. 17).

Suttonia Fernseei Mez, Pflanzenr. 9 (IV. 236) : 336, 1902.

Myrsine Gaudichaudii A. de Candolle var. *grandifolia* Wawra, Flora 57 : 526, 1874.

Rapanea Fernseei (Mez) Degener and Hosaka, Flora Hawaiiensis, 1939.

Branches thick, about 5 mm. in diameter at apex, glabrous; leaf blades 18-30 cm. long, about 6.5 cm. wide, glabrous, dark above, light below, broadly lanceolate to narrowly elliptical, acute at apex, obtuse at base, margin entire, sightly thickened, marginal nerve irregular, submarginal, midrib prominent on the underside, grooved on the upper surface, membranaceous to chartaceous, reticulate; petioles 7-10 mm. long, thick, glabrous; flowers rameal, below the leaves, on bracteate gemmules, in fascicles of about 8 or more; bracts 1.2-2.5 mm. long, 0.8-1.2 mm. wide, ovate to lanceolate, brownish, glabrous on the outer surface, glabrous to slightly glandular pubescent inside, often ciliate at tip; pedicels 7-9 mm. long, glabrous; flowers 3-3.5 mm. long, glabrous; calyx lobes ciliate; petals ciliate, glandular punctate; anthers about 2 mm. long, penicillate at apex; ovary glabrous, with sessile capitate stigma; drupe 6-8 mm. across, ovate to globose, dark purple when ripe.

Type: Kauai, *Wawra 2019* (in Vienna).

Distribution: found in the forests of Kauai.

Kauai: *Wawra 2019*; *Degener 3387*; Waialua Mountains, pole line, *Lydgate*; *Forbes*; Wahiawa, Aug. 1909, *Forbes 185.K.*

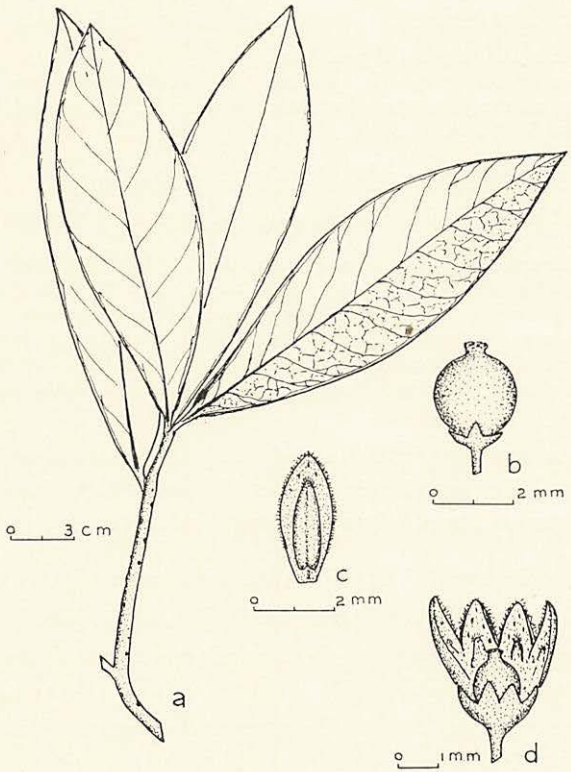

FIGURE 17.—*Myrsine Fernseei:* **a**, habit; **b**, fruit; **c**, petal; **d**, flower.

22. **Myrsine emarginata** (Rock) Hosaka, comb. nov. (fig. 18).
Suttonia Hillebrandii Mez var. *emarginata* Rock, Indigenous trees Haw. Is. 373, 1913.

Tree 1.5-3 m. tall, freely branching, glabrous throughout, leaves 3.5-8 cm. long, 1-2 cm. wide, oblong-lanceolate, chartaceous, contracting at the base into slightly margined petioles of 2-5 mm., veins conspicuous, marginal nerve continuous and very close to the edge, rounded at apex and always emarginate, dark green above, light beneath; inflorescence 3-8 in axils of leaves, slightly raised on bracteate gemmules; pedicels 5-10 mm. long, slender, sparsely puberulous or glabrous; calyx lobes 0.8-1.2 mm. long, obtuse, ciliate; petals 2.5-3 mm. long, sparingly punctate, ciliate, often fused at base; drupes 5-9 mm. in diameter, fleshy, dark purple when ripe.

Type: Oahu, *Rock 1217* (in Bishop Museum).

Distribution: found in the dry to moist forests of Oahu, Maui, and Molokai.

Oahu: Koolau Range, Kipapa Gulch, south ridge, fairly dry slope, alt. 900 ft., May 29, 1932, *Hosaka 563*; Niu Ridge, Sept. 7, 1924, *Topping 2852*; Niu Valley, Aug. 22, 1909, *Rock 4807*; Niu Valley, 1913, *Rock*; Niu Valley, east ridge, April 20, 1931, *Degener 10202*; upper Kalihi Valley, Feb. 16, 1916, *Forbes 2290.O*; central ridge of Niu, Feb. 9, 1914, *Forbes 1899.O*; Koolau Range, Kahana, Waikane-Schofield Trail, open, narrow, wet, brushy ridge, alt. 380 m., Feb. 10, 1935, *Fosberg and V. M. Oliveira 10803*; Honouliuli, Waianae Mountains, Puu Kanehoa, wooded ridge, alt. 2,400 ft., May 16, 1937, *St. John 17982*; Honouliuli, Waianae Mountains, wet, brushy ridge, alt. 880 m., June 30, 1935, *Fosberg 10966*; Nuuanu Valley, east side, Jan. 27, 1909, *Forbes 1081*; lower

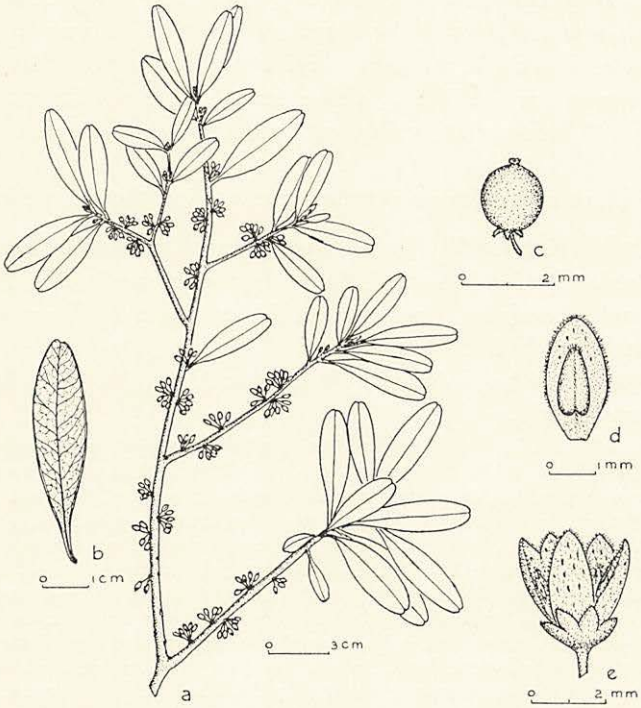

FIGURE 18.—*Myrsine emarginata:* **a**, habit; **b**, leaf; **c**, fruit; **d**, petal; **e**, flower.

slopes of Konahuanui, above Manoa, June 3, 1895, *Heller 2379*; Waikane mountains, Jan. 23, 1909, *Rock 1217*; Honouliuli, head of Kaaikukai Gulch, opposite Nanakuli Valley, near summit of Waianae Mountains, edge of wet forest, alt. 700 m., Sept. 25, 1925, *C. S. Judd*; Kuliouou, in forest, alt. 450-600 m., Feb. 5, 1931, *Christophersen, Wilder, and Hume 1529*; Mokuleia Forest Re-

serve, Waialua, on dry open grassy slope, alt. 1,500 ft., Jan. 13, 1938, *Hosaka and Degener 1931*; southeast of Kahana Bay, summit of mountain, rain forest, July 3, 1932, *Degener 10217*; Waianae Mountains, Kealia, on wooded gulch slope, alt. 1,500 ft., Feb. 2, 1936, *Hosaka 1313*; Kawaihapai, small gulch near summit, decadent forest, Jan. 13, 1938, *Degener, Hosaka, and Salucop 12040*; Kanehoa, northeast summit spur, forest, May 28, 1939, *Degener and others 12378*.

Maui: Olinda, Pipe Line Trail, June 27, 1927, *Degener 10197*; Ukulele, July 27, 1919, *Forbes 958.M*.

Molokai: near Pepeopae Bog, in rain forest, May 1, 1928, *Degener 10195*.

Mez [Pflanzenr. 9 (IV. 236): 337, 1902] described a plant of *Suttonia* as new and called it *S. Hillebrandii*. This species is found to be identical with *M. kauaiensis*. (See discussion in *Myrsine kauaiensis* section.) Rock used Mez's description of *S. Hillebrandii* in identifying a plant he collected on Oahu, and finding it closely related but different from *Hillebrandii*, he described it as *S. Hillebrandii* variety *emarginata*. Rock had not seen *S. Hillebrandii*, for he writes (Indigenous trees Haw. Is. 373), "This species, . . . is not known to the writer . . ." This variety is different from the species and not related to it.

The shape of the leaves is rather constant but the size varies.

23. **Myrsine Knudsenii** (Rock) Hosaka, comb. nov. (fig. 19).

Suttonia Knudsenii Rock, Indigenous trees Haw. Is. 373, 1913.

Suttonia Knudsenii Rock form *elliptica* Rock, Indigenous trees Haw. Is. 373, 1913.

Rapanea Knudsenii (Rock) Degener and Hosaka, Flora Hawaiiensis, 1939.

Tree 3-4 m. tall, branches glabrous, whitish, tortuous; leaf blades 4.5-7 cm. long, 3-4.5 cm. wide, ovate to obovate, or elliptic, glabrous on both sides, veins prominent, reticulate, opaque, punctate on lower surface, dark and shining above, light and dull beneath, coriaceous to chartaceous, margin entire, revolute; petioles 2-4 mm. long, glabrous; inflorescence fasciculated on the naked stem and among the leaves, 3-12 flowers in a cluster, puberulous, pedicels 3.5-4 mm. long, glabrous, bracts 1 mm. long, ovate to lance-acuminate, ciliate; calyx glabrous, with dark longitudinal glands, lobes 1-1.5 mm. long, acute, ciliate; corolla 4-4.2 mm. long, 2 mm. wide, beset with elongate and oval dark glands, ciliate; anther penicillate at apex; fruits 5-8 mm. in diameter, oval to ovate, fleshy when mature, dark purple; stigma sessile, about 1.5 mm. across.

Type: Kauai, *Rock 2337* (in Bishop Museum).

Distribution: found in the wet forests of Kauai.

Kauai: Waimea, Kumuwela Ridge, opening in moist woods, Dec. 28, 1933, *St. John, Fosberg, and Oliveira 13805*; Kokee, in woods, July 5, 1926, *Degener and Wiebke 3389*; Kokee near Kamala [Kanalo] Huluhulu Ranger Station, moist woods, alt. 1,100 m., Dec. 30, 1935, *Fosberg 12730*; on ridge opposite Gay

and Robinson's Hanapepe Valley house, July 9, 1895, *Heller 2530*; Kumuwela Ridge, northwest side above Kokee, wet forest, alt. 1,150 m., Dec. 28, 1935, *Fosberg 12642*; Waimea Drainage Basin, west side, July 3 to Aug. 18, 1917, *C. N. Forbes 793.K*; Halemanu, Feb. 14-26, 1909, *Rock 2358* (=*1661*); Na Pali Kona Forest Reserve; Kokee, Waimea, Dec. 26, 1930, *St. John and others 10706*, Halemanu, Feb. 14-26, 1909, *Rock 2345* (=*2337*); Kawaiu Trail, Aug. 19, 1938, *Skottsberg and party 3006*; Waimea, Kokee, 1939, *Baxter 52*.

Rock (Indigenous trees Haw. Is. 373, 1913) described *S. Knudsenii* form *elliptica* on the shape of the leaves. Inspection of the many specimens collected since 1913 show that the characters overlap.

24. Myrsine kauaiensis (Kauaiensis) Hillebrand (fig. 20).

Myrsine Kauaiensis Hillebrand, Fl. Haw. Is. 280, 1888.

Suttonia kauaiensis (Hillebrand) Mez, Pflanzenr. 9 (IV.236): 335, 1902.

Suttonia Hillebrandii Mez, Pflanzenr. 9 (IV.236): 337, 1902.

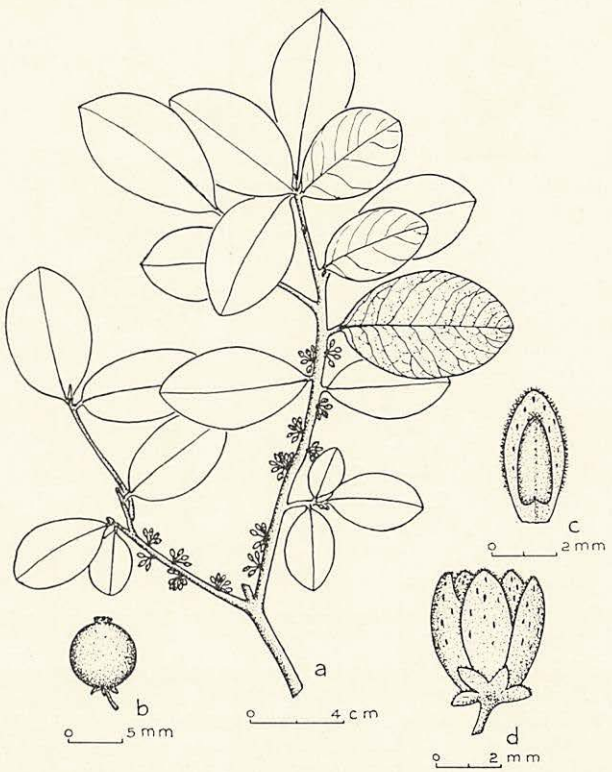

FIGURE 19.—*Myrsine Knudsenii:* a, habit; b, fruit; c, petal; d, flower.

Rapanea Hillebrandii (Mez) Degener and Hosaka, Flora Hawaiiensis, 1939.

Rapanea kauaiensis (Hillebrand) Degener and Hosaka, Flora Hawaiiensis, 1939.

A diffuse glabrous tree; leaf blades 4-8 cm. long, 2-3.5 cm. wide, glabrous, elliptical to oblanceolate, margin entire, acute to retuse at apex, obtuse to subtruncate at base, dark above, light beneath; petioles 2-4 mm. long, glabrous; flowers rameal, on bracteate gemmules, in fascicles of 3-5; bracts 1.8-2 mm. long, ovate to lanceolate, glabrous ciliate, punctate; pedicels 0.8-1.4 mm. long, glabrous; calyx glabrous, lobes ciliate, obtuse, glandular; flowers 3-4 mm. long, petals with elongate or globular glands; anthers penicillate at apex; drupes about 6 mm. in diameter; stigma sessile.

Type: Kauai, *Knudsen 191* (as *Myrsine Kauaiensis*) (in Berlin).

Distribution: found in the wet summit forests of Kauai.

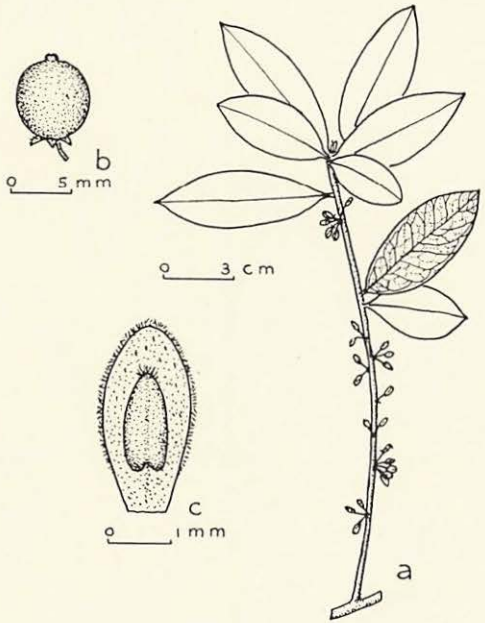

FIGURE 20.—*Myrsine kauaiensis:* **a**, habit; **b**, fruit; **c**, petal.

Kauai: Kaholuamanu, Kauluwehi Swamp, Oct. 25, 1916, *Hitchcock 15523;* Oct. 1916, *Rock*; Halemanu, Feb. 14-26, 1909, *Rock*; Waimea, Kaholuamanu, alt. 4,500 ft., April 27, 1900, *A. Seale*; plateau at head of Kalalau Valley, wet forest, alt. 1,230 m., Dec. 29, 1935, *Fosberg 12693*; on ridge opposite Gay and Robinson's Hanapepe Valley house, July 9, 1895, *Heller 2531*; on the ridge west of the Hanapepe River, Aug. 6, 1895, *Heller 2682*; *Wawra 2126.*

Myrsine kauaiensis was described by Hillebrand with characters taken from two different specimens. Hillebrand had a glabrous leaf plant and 4 hirtellous leaves in the same folder as collected by Knudsen (no. 191) and when writing the description considered both the glabrous and the pubescent leaves as being from the same plant or at least belonging to the same species. He points out the pubescence of the leaves in the description and says (Fl. Haw. Is. 280, 1888) " . . . leaves pubescent underneath when young, glabrate but papillose when old." He also considers the size of the pubescent leaves and gives dimensions as, " . . . 2-3½′×¾-1½′ (inches) . . . " The glabrous leaves on the type sheet are not much over 2 × 0.75 inches.

Mez [Pflanzenr. **9** (IV. 236) : 335, 1902], in his monograph of the Hawaiian *Suttonia,* describes *S. kauaiensis* as having pubescent leaves and writes, "Folia dorso dissite pilosa . . . " Probably Mez thought that there were plants with pubescent leaves that Hillebrand saw but which were unknown to him. Mez took Hillebrand's description of the leaf without questioning that Hillebrand might have written the description of *M. kauaiensis* considering the 4 pubescent leaves. Mez understood that the 4 leaves did not belong to *M. kauaiensis* but to another species of *Suttonia* (*S. Wawraea*). (See p. 36.) The 4 pubescent leaves belong to *Myrsine St.-Johnii,* as I have shown (p. 39).

25. Myrsine lessertiana A. de Candolle (fig. 21).

Myrsine Lessertiana A. de Candolle, Ann. Sci. Nat. II Bot. **16** : 85, 1841.

Myrsine Gaudichaudii Wawra, Flora **57** : 525, 1874.

Suttonia Lessertiana (A. de Candolle) Mez, Pflanzenr. **9** (IV. 236) : 336, 1902.

Myrsine Fauriei Léveillé, Repert. Sp. Nov. **10** : 154, 1911.

Myrsine Molokaiensis Léveillé, Repert. Sp. Nov. **10** : 154, 1911.

Suttonia flavida Léveillé, Repert. Sp. Nov. **10** : 444, 1912.

Suttonia cuneata Léveillé, Repert. Sp. Nov. **10** : 443, 1912.

Myrsine Lessertiana A. de Candolle, Fl. Haw. Is. 279, 1888.

Suttonia Lessertiana (A. de Candolle) Mez, Indigenous trees Haw. Is. 375, 1913.

Suttonia Lessertiana (A. de Candolle) Mez form *ovicarpa* Rock, Indigenous trees Haw. Is. 377, 1913.

Rapanea Lessertiana (A. de Candolle) Degener and Hosaka, Flora Hawaiiensis, 1939.

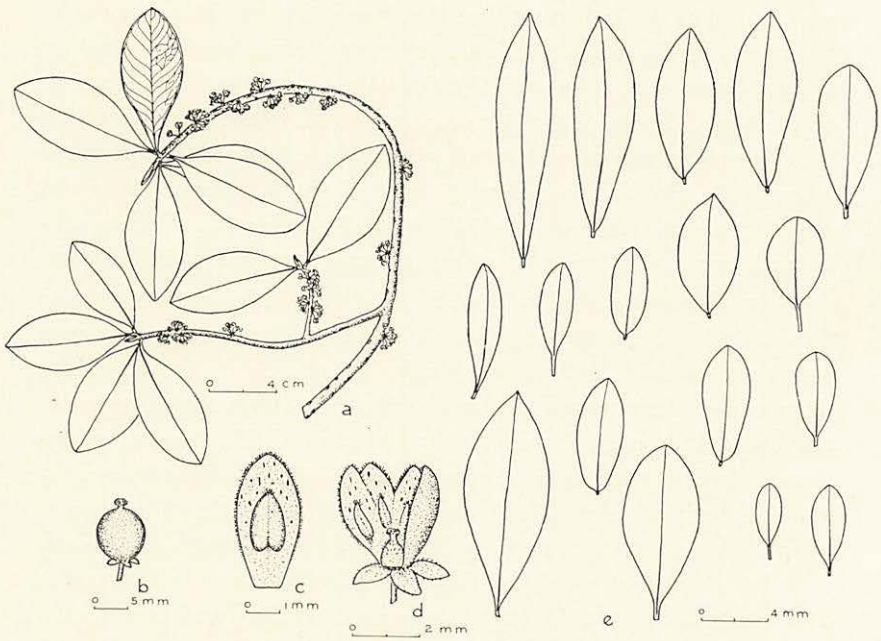

FIGURE 21.—*Myrsine Lessertiana:* **a**, habit; **b**, fruit; **c**, petal; **d**, flower; **e**, variable leaves.

Tree 4-8 m. or more tall, glabrous; leaves of variable length and width, coriaceous to subcoriaceous, elliptical, oblanceolate, obovata, or elliptic-lanceolate; petioles of variable length, subsessile to 3 or more cm. long, glabrous; inflorescence in the axils of the lower leaves or on the naked stem just below the leaves, in fascicles of 3-10 or more, on bracteate gemmules; bracts ovate, ciliate; calyx glabrous, calyx lobes small, ciliate; corolla glabrous, ciliate, beset with irregular glands, petals separate or united at base; anther glabrous except for the penicillate apex; ovary ovoid-conical to ovate; stigma sessile or raised on a short style; drupes globose, subglobose or obovate, dark purplish black when ripe.

Type: "Hab. in insulis Sandwich (Gaudich.! it. nevis Bonite)." I was not able to see this specimen which is probably in Paris.

Distribution: found in dry to wet forests below 6,000 feet elevation on all the larger islands in the Hawaiian group.

Kauai: plateau at head of Kalalau Valley, wet forest, alt. 1,230 m., Dec. 29, 1935, *Fosberg 12697*; Kokee, Kanalo Hululhulu Ranger Station, edge of moist meadow, alt. 1,100 m., Dec. 17, 1935, *Fosberg 12633*; Na Pali Kona Forest Reserve, northwest end Alakai Swamp, thicket at edge of swamp, alt. 3,500-4,023 ft., Dec. 27, 1930, *St. John and others 10777*; Kaholuamanu, Oct. 1916, *Rock 17100;* Waimea Drainage Basin, west side, July 3 to Aug. 18, 1917, *Forbes 1145.K;* Wahiawa, *Lydgate*; Oct. 21, 1916, *Forbes 639.K*; Lydgate mountain house, Oct. 21, 1916, *Forbes 639.K*; Wahiawa, Aug. 1909, *Forbes 267.K*; Haiku, Laaukahi, lower forest, alt. 1,350 ft., Dec. 22, 1933, *St. John and Fosberg 13485*; Kaholuamanu, March 3-10, 1909, *Rock 2364*; Hanapepe, woods near falls, June 19, 1926, *Degener and Wiebke 3386*; Halii Valley, wet woods, June 11, 1926, *Degener 3387*; Anahola, Kawaiumakua, open forest, Dec. 26, 1939, *Degener and Ordonez 12600*; Koloa, Kalualea, lower rain forest, Dec. 31, 1939, *Degener and Ordonez 12595*; Nawiliwili, Hokunui, open summit forest, Jan. 8, 1940, *Degener and Ordonez 12594*.

Oahu: Waikane, Jan. 23, 1909, *Rock 1101*; Kaala Range, Makaha Valley, Feb. 12-19, 1909, *Forbes 1161.O*; Manoa Cliff Trail, June 12, 1920, *Garber 413*; 1932, *Degener 10206*; Konahuanui, Oct. 1909, *Faurie 427*; on lower slopes of Konahuanui, above Manoa, May 13, 1895, *Heller 2304*; Koolau Range, Manoa-Palolo Ridge, above Woodlawn, moist forest, alt. 375 m., April 17, 1937, *Fosberg 13701*; Pacific Heights, Dec. 20, 1903, *W. A. Bryan*; Hauula Forest Reserve, Punaiki Trail, lower edge of lower forest, May 1933, *E. H. Bryan, Jr.;* Waianae Uka, Waianae Mountains, north ridge of Puu Kumakalii, steep wooded slope, alt. 720 m., March 28, 1937, *Fosberg 13647*; crest of Koolau Range, head of Kuliouou Valley, July 13, 1937, *Egler 37-115*; Waianae Mountains, Kealia, on wooded slope in gully, alt. 1,500 ft., Feb. 2, 1936, *Hosaka 1312*; Hauula, ridge southeast of Maakua Gulch, moist forest, alt. 430 m., Oct. 27, 1935, *Fosberg 12291*; top of Mount Olympus ridge, rain forest, Feb. 12, 1927, *J. M. Horner 94*; Honouliuli, Waianae Mountains, ridge above Kupehau, alt. 750 m., June 30, 1935, *Fosberg 10979*; Waikane, Jan. 23, 1909, *Rock 1276*; middle ridge of Niu Valley, moderately dry forest, June 4, 1932, *Degener and others 10222*; Makua Valley, Aug. 24, 1924, *Topping 2817*; Honouliuli, Waianae Mountains, Puu Kaua, alt. 1,500-3,113 ft., Nov. 6, 1932, *Krauss*; Nuuanu, Nov. 1909, *Faurie 423*; Koolau Range, Pupukea-Kahuku Trail, moist forest, alt. 440 m., July 20, 1935, *Fosberg 12241*; Kuliouou, crest of small ridge on west side of Kuliouou Valley, June 29, 1937, *Egler 37-134, 37-133*; Kawailoa, Puu Kapu, forest, Feb. 25, 1937, *Degener and others 11078*; Niu Ridge, Nov. 30, 1924, *Topping 2937*; from Manoa Valley toward Mount Olympus, rain forest, Feb. 6, 1927, *Degener 3402*; Waianae Mountains, near Mauna Kapu, open woods, Jan. 15, 1927, *Degener and Wiebke 3403*; Pauoa Valley, Jan. 7, 1909, *Rock 1038*; near Palehua, Jan. 1, 1916, *Rock*; Pauoa Valley, Jan. 7, 1909, *Rock 1036*; Kuliouou, in forest, alt. 450-600 m., Feb. 5, 1931, *Christophersen, Wilder, Hume 1524*; Waianae Mountains, Mokuleia, Kamananui, Puu Kaala, gulch east of Puu Kaupakuhale, on moist slope, alt. 2,000 ft., Oct. 23, 1932, *T. G. Yuncker and others*; Manoa-Palolo Ridge, dry forest, alt. 500 m., March 19, 1933, *Fosberg 9283*; Honouliuli, Waianae Mountains, east ridge of Puu Kanehoa, open woods, alt. 2,300 ft., Jan. 7, 1934, *St. John 14057*; Honouliuli, Waianae Mountains, ridge above Kupehau, wet brushy ridge, alt. 800 m., June 30, 1935, *Fosberg 10973*; Koolau Range, Kipapa Gulch, lower forest, alt. 1,000 ft., April 30, 1933, *Hosaka 993*; Honouliuli, Waianae Mountains, Puu Kanehoa, wooded ridge, alt. 2,300 ft., March 22, 1931, *St. John 11060*; Ewa Forest Reserve, Koolau Range, Kalauao-Waimalu Ridge, wooded ridge, alt. 1,700 ft., April 30, 1933, *St. John 13106*; Koolau Range,

Kipapa Gulch, south ridge, on moist wooded ridge, alt. 1,600 ft., March 5, 1933, *Hosaka 935*; top of Kaala, wet forest, alt. 1,200 ft., May 10-15, 1931, *Christophersen and Hume 1792*; Honouliuli, Waianae Mountains, east ridge of Puu Kanehoa, lower woods, alt. 1,600 ft., Jan. 7, 1934, *St. John 14067*; Puu Kapu, wet forest, alt. 500-600 m., Feb. 12, 1931, *Christophersen and others 1569*; Honouliuli, Waianae Mountains, Puu Hapapa, alt. 2,600 ft., March 16, 1930, *St. John 10424*; Waianae Mountains, Puu Hapapa, in woods, alt. 2,000 ft., March 16, 1930, *Hosaka 173*; Waianae Mountains, Puu Manawahua, on wooded slope, alt. 2,000 ft., Dec. 8, 1929, *Hosaka 70*; Kuaokala Forest Reserve, Waianae Mountains, on dry sparsely wooded ridge, alt. 1,400-1,500 ft., Aug. 4, 1935, *Hosaka* 1291; top of Kaala, wet forest, alt. 1,200 m., May 10-15, 1931, *Christophersen and Hume 1764*; Manoa, ridge toward Palolo, June 1932, *Meebold*; Honouliuli, Waianae Mountains, ridge above forest reserve house, southeast of Palikea, moist forest, alt. 850 m., June 30, 1935, *Fosberg 10935*; Koolau Range, Nuuanu-Kalihi ridge, alt. 500-600 m., Aug. 13, 1922, *Skottsberg 175*; Kipapa Gulch, April 2, 1933, *Hosaka 960*; Waianae Mountains, Puu Manawahua, wooded ridge, alt. 2,300 ft., Sept. 29, 1929, *St. John 9910*; ridge east of Nuuanu Valley, Feb. 8, 1910, *Forbes 1435, 1436*; Waianae Uka, Waianae Mountains, Puu Kaala, on wet ridge, alt. 2,590 ft., Jan. 8, 1933, *H. Davis*; Koolau Range, main ridge between Nuuanu and Kalihi, moist wooded ridge, alt. 650 m., June 27, 1937, *Fosberg 14138*; Honolulu, Waiolani, west side of Nuuanu, June 28, 1908, *Forbes*; Honouliuli, Waianae Mountains, ridge above Kupehau, dry brushy slope, alt. 600 m., June 30, 1935, *Fosberg 10991*; Waianae Mountains, April 1918, *Rock 17056*; Waianae Mountains, Makaha-Waianae Kai, Puu Kawiwi-Puu Kaala ridge, moist forest, alt. 900 m., March 31, 1935, *Fosberg 10869*; Honouliuli, Waianae Mountains, near summit of Palikea, moist forest, brushy main divide, alt. 930 m., June 30, 1935, *Fosberg 10950*; Waianae Uka, Waianae Mountains, Puu Kaala, summit, wet forest, alt. 1,230 m., Jan. 8, 1933, *Fosberg 9076*; Kaala region, June 18, 1932, *Meebold (Degener 9439)*; Koolau Range, Kipapa Gulch, on wet ridge, alt. 2,800 ft., Aug. 6, 1932, *Hosaka 1140*; Waianae Mountains, Puu Kaala, rain forest, alt. 4,000 ft., Oct. 4, 1934, *Hosaka 1262;* 1913, *Wilder*; Waianae Mountains, Kaala, Makaleha Ridge, alt. 3,600 ft., June 1932, *Meebold*; Pauoa Valley, Jan. 7, 1909, *Rock 1080*; Mokuleia Forest Reserve, Waianae Mountains, Mokuleia-Makua divide, rain forest at divide, alt. 2,500 ft., Nov. 25, 1932, *St. John 12245*; Punaluu, Dec. 3-14, 1908, *Rock 337*; Koolau Range, Waipio, south ridge of Kipapa Gulch, east of Puu Kamana, wooded ridge, alt. 1,700 ft., May 15, 1932, *St. John 11670*; Mount Kaala, Jan. 25, 1925, *Topping 2997*; Waianae, Palehua, Aug. 23, 1922, *Skottsberg 308*; Koolau Range, head of Kahana Valley, on ridge, alt. 2,250 ft., May 30, 1937, *Hosaka and Fosberg 1886*; Kaau Crater, July 29, 1937, *Egler 37-317*; Waipio, Kipapa Gulch, wooded ridge, alt. 750 m., Aug. 7, 1933, *Fosberg 9771*; Waipio, Kipapa Gulch, wet slope, alt. 2,000 ft., Feb. 10, 1935, *Hosaka 1274*; west side of Kahana Valley, sunny slope at 700 ft., Feb. 24, 1929, *Rodrigues and Krauss 3706*; Wailupe Valley, April 14, 1918, *Rock 17118*; directly mountainward of Kawela Bay, above pineapple fields, dryish woods, April 2, 1933, *Degener 10203*; top of Kaala, wet forest, alt. 1,200 m., May 10-15, 1931, *Christophersen and Hume 1762, 1802*; Waianae Mountains, Mount Kaala, on wooded slope, alt. 2,000 ft., Feb. 2, 1930, *Hosaka 143*; Puu Kapu, wet forest, alt. 500-600 m., Feb. 12, 1931, *Christophersen, Wilder, Hume 1588*; Waianae Mountains, Puu Hapapa, on wooded slope, alt. 2,000 ft., March 16, 1930, *Hosaka 173*; Honouliuli, Waianae Mountains, east ridge of Puu Kaua, open ridge, alt. 900 m., Nov. 6, 1932, *Fosberg 9015*; Wai-

anae Mountains, Jan. 23, 1909, *Rock 1255*; Honouliuli, Waianae Mountains, Puu Kaua, wooded ridge, alt. 2,700 ft., Nov. 6, 1932, *St. John 12199*; Koolau Range, Kahana, Waikane-Schofield Trail, wet forest, steep slope, alt. 500 m., Oct. 16, 1932, *Fosberg 8765*; Waianae Uka, Waianae Mountains, Puu Kaala, east slope, dry forest, alt. 825 m., Jan. 8, 1933, *Fosberg 9081*; near Mauna Kapu, forest, Dec. 16, 1935, *Degener and others 10232*; Kawaihapai Valley, dry grassy slope, Jan. 27, 1929, *Degener 10210*; 2 ridges south of Pohakea Pass, dry slope, alt. 350-500 m., March 19, 1931, *Christophersen, Wilder, Hume 1636*; Koolau Range, Punaluu, Dec. 3-14, 1908, *Rock 739*; Punaluu, Pig-god Trail, forest, Jan. 17, 1932, *Degener and others 10212*; west Niu Gulch, alt. 320 m., July 20, 1937, *Egler 37-198*; Koolau Range, Kipapa Gulch, on moist wooded ridge, alt. 2,000 ft., Aug. 7, 1933, *Hosaka 1170*; Waianae Uka, Waianae Mountains, east ridge of Puu Kalena, dry forest, alt. 600 m., March 22, 1936, *Fosberg 13020, 13021*; Waianae Mountains, Puu Kaala, Mokuleia, second gulch east of Puu Kaupakuhale, on wooded gulch, Oct. 23, 1932, *Fosberg and St. John 8917*; Mokuleia Forest Reserve, Waialua, Mokuleia, on open grassy slope, alt. 1,500 ft., Jan. 13, 1938, *Hosaka and Degener 1932*; Palehua, Nov. 1935, *Meebold (Degener 10095)*; northeast slope of Puu Kumakalii, forest, April 1, 1936, *Degener, Tam, Martinez 11521*; middle Palawai ridge, May 12, 1936, *Degener 11522*; Aiea, C.C.C. trail, forest, March 15, 1936, *Degener and Martinez 11523*; east side of Kaaawa Gulch, rain forest, April 11, 1937, *Degener and Salucop 11524*; northern slope of Kahana Valley just opposite a small native church, open forest, Nov. 6, 1932, *Degener and others 10213*; gulch north of middle ridge between Puu Kamaohanui and Puu Pane, June 11, 1932, *Degener and others 10215*; southeast side of Makua Valley near its head, moderately dry woods, Jan. 3, 1932, *Degener and Park 10219*; Waianae Mountains, Mokuleia, Piko Trail, head of Kapuna Valley, moist forest, alt. 600 m., April 11, 1936, *Fosberg 13031*; Puu Hapapa, Sept. 9, 1938, *Skottsberg and party 3332*; Koolau Range, Kaunala, Pupukea-Kahuku trail, in wooded forest, alt. 1,200 ft., May 31, 1937, *Hosaka and Fosberg 1923*; Koolau Range, Puu Kainapuaa, on wooded slope, alt. 2,300 ft., May 31, 1937, *Hosaka and Fosberg 1922*; overlooking Kahanahaiki Valley, decadent forest, Jan. 16, 1938, *Degener and others 12038*; Waianae Mountains, Honouliuli, east side of Puu Kanehoa, alt. 2,350 ft., Jan. 7, 1934, *R. Onouye*; Waianae, May 1910, *Faurie 422*; Konahuanui, Oct. 1909, *Faurie 427*; Kanehoa, east slope, forest, May 28, 1939, *Degener and party 12379*; Koolau Range, Kawailoa Forest Reserve, on wooded ridge, alt. 1,800 ft., July 3, 1938, *Hosaka 2500.*

Molokai: Wailau Valley, steep slope, wet lower forest, alt. 80 m., July 3, 1933, *Fosberg 9637*; Wailau Valley, Kukuinui Ridge, moist woods, alt. 2,400 ft., July 4, 1933, *St. John, Dunn, Storey 13277*; near Kahuaawi Gulch, in rain forest, May 12, 1928, *Degener and Wiebke 3398*; Manawai-Kahananui ridge, moist forest, alt. 600 m., Dec. 24, 1936, *Fosberg 13391*; Kalae, May 25, 1918, *Rock 14045*; mountain above Puu Kolekole, July 912, *Forbes 203.Mo*; west of Pepeopae, shrubby plain, April 12, 1928, *Degener 10192*; open bog, upper forest, June 5, 1916, *Munro 581*; Kaluaaha, Aug. 1912, *Forbes 451.Mo*; Wailau Pali, in dense forest, alt. 3,000 ft., April 1910, *Rock 7048*; head of Wailau Valley, top of cliff, rain forest, alt. 900 m., Dec. 23, 1936, *Fosberg 13367, 13371*; near Puu o Wahaula, in rain forest, April 17, 1928, *Degener and Wiebke 3400*; near Pepeopae bog, in rain forest, May 1, 1928, *Degener 10194*; Kawela, Waikolu Valley, ridge between Hanalilolilo and Pepeopae, Dec. 25, 1932, *St. John 12554*; 1919, *J. F. G. Stokes*; south of Kaulahuki, moderately dry region, April 11, 1928, *Degener 10193*; north of Pepeopae, in rain forest, May 8, 1928, *Degener and Wiebke 3399*; near Pepeopae Bog, in rain forest, May 1, 1928,

Degener 10196; Wailau, top of ridge, Sept. 19, 1938, *Skottsberg and party 3400*; bog, July 12, 1938, *Skottsberg and party 2583*; near Kahuaawi Gulch, in rain forest, May 12, 1928, *Degener 3398*; Kawela, Puu Alii, Waipio Bog, alt. 4,100 ft., Dec. 31, 1938, *St. John 19918*; Kawela, Kawela Gulch, moist ohia woods, alt. 3,500 ft., Dec. 30, 1938, *St. John and others 19901*; Kamolo, 1,000 m., June 1910, *Faurie 435*; Hanalilolilo, Waikolu Valley, head of valley, wet forest, alt. 3,800 ft., Dec. 21, 1932, *St. John and others 12384*; above Pelekunu, edge of trail, to west, June 24, 1938, *Cranwell*.

Lanai: ridge below Puu Aalii between Maunalei drainage and Hauola drainage, rather dry forest, alt. 800 m., Nov. 30, 1935, *Fosberg 12468, 12476*, Feb. 25, 1917, *Munro*; mountain east end, June 1913, *Forbes 243.L*; Jan. 6, 1916, *Munro 487*; *Munro 219*; Sept. 1917, *Forbes 296.L*; Koele, on drier fore hills, July 1910, *Rock 8034*; Mahana, April 20, 1915, *Munro 238*; Mahana Valley, Aug. 1, 1910, *Rock 8102*; head of Hulopoe Gulch, dry forest, alt. 700 m., Nov. 30, 1935, *Fosberg 12504*; mountain east end, June 1913, *Forbes 274.L*; Mahana, April 20, 1915, *Munro 453*; Mahana, Aug. 28, 1920, *Munro*; ridge below Puu Aalii, between Maunalei drainage and Hauola drainage, dry forest, alt. 750 m., Nov. 30, 1935, *Fosberg 12462*; Sept. 1917, *Forbes 298.L*; Koele, on drier fore hills, July 1910, *Rock 8034*; Maunalei, pipe line trail, windswept dry forest, April 12, 1938, *Hosaka and St. John 1945*; Mahana, Hulopoe Gulch, lower forest, alt. 1,900 ft., April 9, 1938, *St. John and Eames 18753*; Kaohoi, head of Awehi Gulch, lower forest, alt. 3,000 ft., April 15, 1938, *St. John and Hosaka 18889*.

Maui: Aug. 1909, *Faurie 4, 5*; Kaupo Gap, camp site, Aug. 14, 1919, *Forbes 1136.M, 1137.M*; Paliku, alt. 6,400 ft., July 9, 1937, *G. E. Olson 49*; Haelaau, wooded ridge, alt. 3,500 ft., Feb. 5, 1930, *St. John 10195*; central ridge of Olowalu Valley, May 12, 1920, *Forbes 2322.M*; *Forbes 1938.M*; hill back of Olinda on way to Haleakala, edge of rain forest, June 15, 1927, *Degener 3395*; east Maui, above Olinda, woods near Ukulele, July 1910, *Forbes 159.M*; Haleakala, in wet fog-swept Koolau Gap, Aug. 17, 1927, *Degener, Wiebke, Topping 3394*; Haleakala, July 1919, *Forbes*; east of Ukulele, Haleakala, July 20, 1919, *Forbes 899.M*; Keanae Pali, east of Ukulele, July 7, 1919, *Forbes 634.M*; Haleakala, open locality, Aug. 9, 1927, *Degener and Wiebke 3393*; along Olinda pipe line, in rain forest, June 17, 1927, *Degener and Wiebke 3396*; Nakalalua, thicket on ridge, alt. 4,500 ft., Feb. 6, 1930, *St. John 10242*; Kaupo Gap, Crater of Haleakala, Aug. 10, 1919, *Forbes 1109.M*; east Maui, Olinda, Kula flume line, wet woods, alt. 4,300 ft., Feb. 12, 1930, *St. John 10323*; east Maui, Haleakala, Puu Nianiau Crater, Oct. 11, 1910, *Rock 8591*; Olinda, Oct. 1935, *Meebold (Degener 10229)*; Olinda, pipe-line trail, June 16, 1927, *Degener 10198*; west Maui, Honokahau, May 1910, *Forbes 52.M*; Puu Pani, March 4, 1920, *Forbes 1845.M*; Kula, *Hillebrand and Lydgate*; Haelaau-Puu Kukui trail, rain forest, Dec. 19, 1928, *Ewart III, and Munro 103*; Olinda, Oct. 1935, *Meebold (Degener 10228)*; *Forbes 1861*; Ulupalakua, Dec. 2, 1915, *Munro 400*.

Hawaii: Puuwaawaa, Puu Hualalai, alt. 4,000-6,000 ft., Dec. 29, 1931, *St. John and others 11394*; Mauna Loa, Puu Kaohe, Feb. 10, 1912, *Rock 10030*; Kilauea, Bird Park, moderately dry open forest, July 9, 1929, *Degener 10209*; Kilauea, Bird Park, Aug. 3, 1927, *M. C. Neal*; Kilauea, Kipuka Puaulu, alt. 4,000 ft., May, 1932, *Meebold*; Kilauea, Bird Park, open woods, alt. 4,000 ft., Dec. 22, 1931, *St. John and others 11247*; Kilauea, Kipuka Puaulu, dry open forest, alt. 1,230 m., Aug. 30, 1933, *Forbes 10130*; Kau, Naalehu forest, Jan. 1913, *Rock 10000*; between Volcano House and 29 Miles, jungle, Oct. 13, 1929, *Degener 10205*; along Kohala Ditch Trail, in moist woods, Aug. 10, 1926,

Degener and Wiebke 3381; Kohala Mountains, Waipio, upper Hamakua Ditch Trail, top of pali, alt. 3,200 ft., Jan. 1, 1932, *St. John and Hosaka 11449;* Manuka Mauka, alt. 2,300 ft., Dec. 24, 1931, *St. John and others 11280*; Paauhau 3 Gulch, Parker Ranch, July 6, 1909, *Rock 4696, 4695, 4705*; Kilauea, open forest, July 17, 1929, *Degener 10208*; Kilauea, Bird Park, in dry parklike *kipuka*, Dec. 22, 1922, *Degener 1561*; forest between Waiopu and Olaa, May 19, 1915, *Forbes 567.H*; Alakahi-Kawainui, July 12, 1909, *Rock 4694*; Kilauea, forest, Aug. 1917, *Rock 13033*; Mount Hualalai, Puulaalaau, west slope, alt. 4,000 ft., June 10, 1909, *Rock 3748*; *kipuka* in 1855 lava flow, below Holualoa, June 7, 1915, *Forbes 750.H, 784.H*; 17 miles from Kona toward Waimea, open woods, Aug. 14, 1926, *Degener and Wiebke 3378*; Kilauea, scrub vegetation on volcanic ash, Dec. 17, 1922, *Degener 1560*; east slope of Hualalai, June 7, 1923, *Munro 703*; north Kona, north slope of Hualalai, June 7, 1923, *Munro 520*; Kohala, June 1910, *Rock 8388*; Kohala, June 1910, *Rock 8396*; Glenwood, 28 Miles, June 30, 1929, *Degener 10207*; Kilauea, Chain of Craters, Napau Trail, alt. 2,700 ft., Dec. 30, 1931, *St. John and others 11225*; Kilauea, between Makaopuhi and Napau Craters, Chain of Craters, wet forest on lava flow, alt. 900 m., Aug. 29, 1933, *Fosberg 10117*; Mount Hualalai, Puulaalaau, June 10, 1909, *Rock 3485, 3486*; Hualalai, Puuwaawaa, in semi-moist rocky place, alt. 4,000 ft., Sept. 17, 1936, *Hosaka 1616*; North Kohala, Kahua pasture, in open place, alt. 3,000 ft., Sept. 4, 1936, *Hosaka 1575*; north Kohala Forest Reserve, Kohala Mountains, head Honokane Gulch, in wet forest, alt. 4,000 ft., Sept. 4, 936, *Hosaka 1567;* South Kona, Papa, in wooded ohia forest, alt. 1,600 ft., Aug. 8, 1936, *Hosaka 1481*; mountainward of Punaluu, in rain forest, Aug. 26, 1926, *Degener 10224;* east slope of Mauna Kea, Kukaiau Ranch, alt. 800 m., Sept. 29, 1922, *Skottsberg 1974*; Kohala Mountains, upper Hamakua Ditch, head of Alakahi fork of Waipio Valley, wet forest, alt. 1,075 m., Sept. 3, 1933, *Fosberg 10214*; Mauna Loa, Feb. 10, 1912, *Rock 10030*; Laumaia, in koa-lehua forest, Aug. 17, 1935, *Neal and Hartt 822*; Puna, Napau Crater, ohia woods, alt. 3,000 ft., Dec. 20, 1937, *St. John and others 18420*; north Hilo, Hilo Forest Reserve, Laupahoehoe, moist ohia forest, alt. 5,200 ft., Dec. 31, 1937, *St. John and others 18630*; Hilo Forest Reserve, Humuula, Keanakolu, moist gulch in koa forest, alt. 5,400 ft., Dec. 30, 1937, *St. John and others 18582*; South Kona, Alika, middle *Metrosideros* forest, alt. 3,100 ft., Dec. 27, 1937, *St. John and others 18549*; Mauna Kea, Volcan (Volcano) Kilauea, May and July 1909, *Faurie 2, 3, 431*; Hamakua, Kamoku, in pasture, alt. 2,400 ft., May 25, 1938, *Hosaka 2102.*

Myrsine Lessertiana is the most varible species in the genus. Rock (Indigenous trees Haw. Is. 375, 1913) says, "Should one undertake to describe all the various forms as new species, as *H. Léveillé* did, one would certainly be naming individuals, . . . " What Rock says is true. The size and shape of the leaves are the most variable parts of the plant. In this species there are leaves 2.5×1.5 cm. on one extreme and leaves 15×6 cm. or more on the other extreme, and between are variable leaves. But all these plants seem to belong to one group and they can be easily distinguished from the other species of *Myrsine.*

M. Lessertiana is probably in the process of evolution. Although it is found on all the islands, Kauai, the oldest island, has the least number of forms and Hawaii, the youngest island, has the most number of forms of this species. At present I am not able to state whether this variation is due to hybridization or to the effect of environment, though environment seems to be the major factor in causing the variation. The greatest number of variable forms are found on the several recent lava flows of Hawaii and Maui. Some of these forms may develop into distinct species.