REVISION OF THE TAIWAN SPECIES OF LASIANTHUS (RUBIACEAE)

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While we were engaged in revising the family Rubiaceae, we found that in Taiwan the genus *Lasianthus* is especially rich in species as compared with the other genera of the same family, which makes the identification of species a rather troublesome work. Most of the species of the said genus are commonly distributed under the tropical and subtropical rain forests in the whole island and adjacent areas.

In 1906, Matsumura and Hayata first listed 7 species in their "Enumeratio Plantarum Formosanarum". After thirty years, namely in 1936, 10 species were found both in Masamune's "Short Flora of Formosa" and in Kanehira's "Formosan Trees, Rev. Ed." Near the end of the Second World War (1944), a paper on the Genus Lasianthus of Formosa (Notae ad Plantes, Generis Lasianthi Formosae) was published by H. Simizu in Trans. Nat. Hist. Soc. Formosa, in which 11 species were dealt with. Among them, 6 species were described as new. Unfortunately, Simizu only published sections I and II of his paper and was not able to complete his study of this genus. Last year (1963), Dr. H. L. Li reduced all the species of Taiwan Lasianthus into 5 and 1 uncertain in his book, "Woody Flora of Taiwan". After careful examination of all the specimens preserved in the Herbaria of National Taiwan University and the Taiwan Forestry Research Institute, we are unable to agree completely with the opinions made by Dr. Li. Having finished this manuscript, we read a paper entitled "Note on Lasianthus in Ryukyu" by Dr. Takasi Yamazaki, in the Journal of Japanese Botany, Vol. 39, 1964, in which he gives a detailed account on the species of *Lasianthus* in Ryukyu. Dr. Yamazaki's opinions dealing with the Ryukyu *Lasianthus*, for the most part, are similar to ours, but in some points we differ as will be pointed out under the different species.

This paper is a critical revision of all the species of *Lasianthus* found in Taiwan. Thirteen species and 3 varieties are revised as follows. Of the 3 varieties, two are proposed as new. In addition, several synonyms and one new combination has been made. A description of the genus, followed by an analytical key to the species, descriptions, habitat, general distribution and illustration of each species, is given. Most of the materials used for this study are deposited in the Herbarium of the Department of Botany, National Taiwan University and the Herbarium of Taiwan Forestry Research Institute (TFRI).

It is a great pleasure here to express our appreciation to Prof. B. Y. Yang, Head of the Department of Botany, National Taiwan University, and Prof. W. F. Lin, Director of Taiwan Forestry Research Institute for their encouragement and helpful suggestions. We are particularly thankful to Dr. Charles E. DeVol, Prof. of Botany,

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Lasianthus Jack.

雞屎樹屬 Chi Shih Shu Shu

Lasianthus Jack., in Trans. Linn. Soc. **14**:125, 1823

Mephitidia Reinw. ex Blume, Cat. Gew. Buitenz. 15, 1823.

Erect shrubs; branches and branchlets terete, impressed at the node. Leaves opposite, distichous, usually cuspidate-acuminate, with arching veins and transverse veinlets which are simple, forked or reticulate; stipules interpetiolar, broad, rarely narrow. Flowers white, small, in axillary clusters, cymes or heads, often bracteate; calyx-tube short, 4-7-toothed or lobed, rarely truncate, persistent; corolla funnelform or tube-like, throat villous, lobes 4–5, valvate in bud; stamens 4–7 on the throat of corolla, filaments short, anthers linear or oblong, often apiculate; ovary 4-5-celled, ovules 1, in each cell, basal, erect. Drupe small, 4-5-seeded.

Species over 100 in the world. Thirteen species and three varieties found in Taiwan.

Key to the species and varieties

1. Leaves oblique at base ..... 16. *L. plagiophyllus*
1. Leaves acute to round, not oblique at base ..... 2.
2. Leaves hairy on both surfaces, the bracts of flowers leaf-like ..... 6. *L. cyanocarpus*
2. Leaves glabrous on upper surface, the bracts of flowers inconspicuous or absent ..... 3.
3. Veinlets reticulate or nearly so ..... 4.
3. Veinlets parallel or subparallel ..... 5.
4. Leaves lanceolate-oblong, less than 15 cm. long, apex cuspidate, veins 6 paired ..... 10. *L. japonicus*
4. Leaves oblong, about 20 cm. long, apex acute, veins 11–14 paired ..... 4. *L. chinensis*
5. Cymes peduncled, branches and branchlets glabrous ..... 12. *L. microstachys*
5. Cymes sessile, branches and branchlets pubescent or hirsute, rarely glabrous ..... 6.
6. Stipules lanceolate, 3–5 mm. long, leaves black when dry .. 7.
6. Stipules minute, only 1 mm. long, leaves not black when dry ..... 10.
7. Leaves obovate or ovate, stipules with long spreading hirsute hairs, flowers 4-merous, calyx lobed ..... 9. *L. hiiranensis*

7. Leaves oblong, lanceolate-oblong or oblanceolate, stipules thin hairy, flowers 5-merous, rarely 4, calyx truncate or dentate ..... 8.
8. Leaves lanceolate-oblong or oblanceolate less than 2.5 cm. wide ..... 15. *L. obliquinervis* var. *taitoensis*
8. Leaves oblong, more than 3 cm. wide ..... 9.
9. Leaves 13–18 cm. long ..... 13. *L. obliquinervis*
9. Leaves 6–10 cm. long ..... 14. *L. obliquinervis* var. *simizui*
10. Branchlets, petioles, lower surface of leaves and calyces densely hirsute ..... 11.
10. Branchlets, petioles, lower surface of leaves and calyces sparsely hirsute or glabrous ..... 15.
11. Branchlets and lower surface of leaves appressedly hirsute ..... 12.
11. Branchlets and lower surface of leaves spreadingly hirsute ..... 13.
12. Leaves 7–8 cm. long, 1.5–2 cm. wide ..... 1. *L. appressihirtus*
12. Leaves 9–11 cm. long, 2.5–4 cm. wide ..... 2. *L. appressihirtus* var. *maximus*
13. Leaves elliptic or ovate, calyx with broad-triangular teeth .. 3. *L. bunzanensis*
13. Leaves oblong, calyx with acute-triangular or linear-lanceolate lobes ..... 14.
14. Calyx-lobes acute-triangular, with short hirsute hairs about 2 mm. long ..... 8. *L. formosensis*
14. Calyx-lobes linear-lanceolate, with longer and densely hirsute hairs about 4 mm. long ..... 5. *L. curtisii*
15. Leaves 6–11 cm. long, sometimes up to 15 cm. long ..... 7. *L. fordii*
15. Leaves 4–6 cm. long ..... 11. *L. microphyllus*

1. Lasianthus appressihirtus Simizu, in Trans, Nat. Hist. Soc. Formos. **34**:300, 1934; Masam. List Vasc. Pl. Taiwan 177, 1954. Fig. 1.

Lasianthus formosensis Matsum. var. *parvifolius* Hatusima in Sci. Bull. Agric. Home Econom. Univ. Ryukyu **3**:23, 1956. syn. nov.

A shrub, 1–1.5 m. tall. Branches and branchlets densely and appressedly hirsute or pubescent. Leaves petiolate, subcoriaceous or chartaceous, oblong or oblanceolate-oblong, 7–8 cm. long, 1.5–2 cm. broad, apex cuspidate-acuminate, base acute, upper surfaceglabrous, lower surface appressedly hirsute, veins 7-8-paired, veinlets subparallel; petioles appressedly hirsute, 5–8 mm. long; stipules minute. Cymes sessile, 2-3-flowered; bracts minute, hirsute. Flowers sessile, 10 mm. long; calyx campanulate,

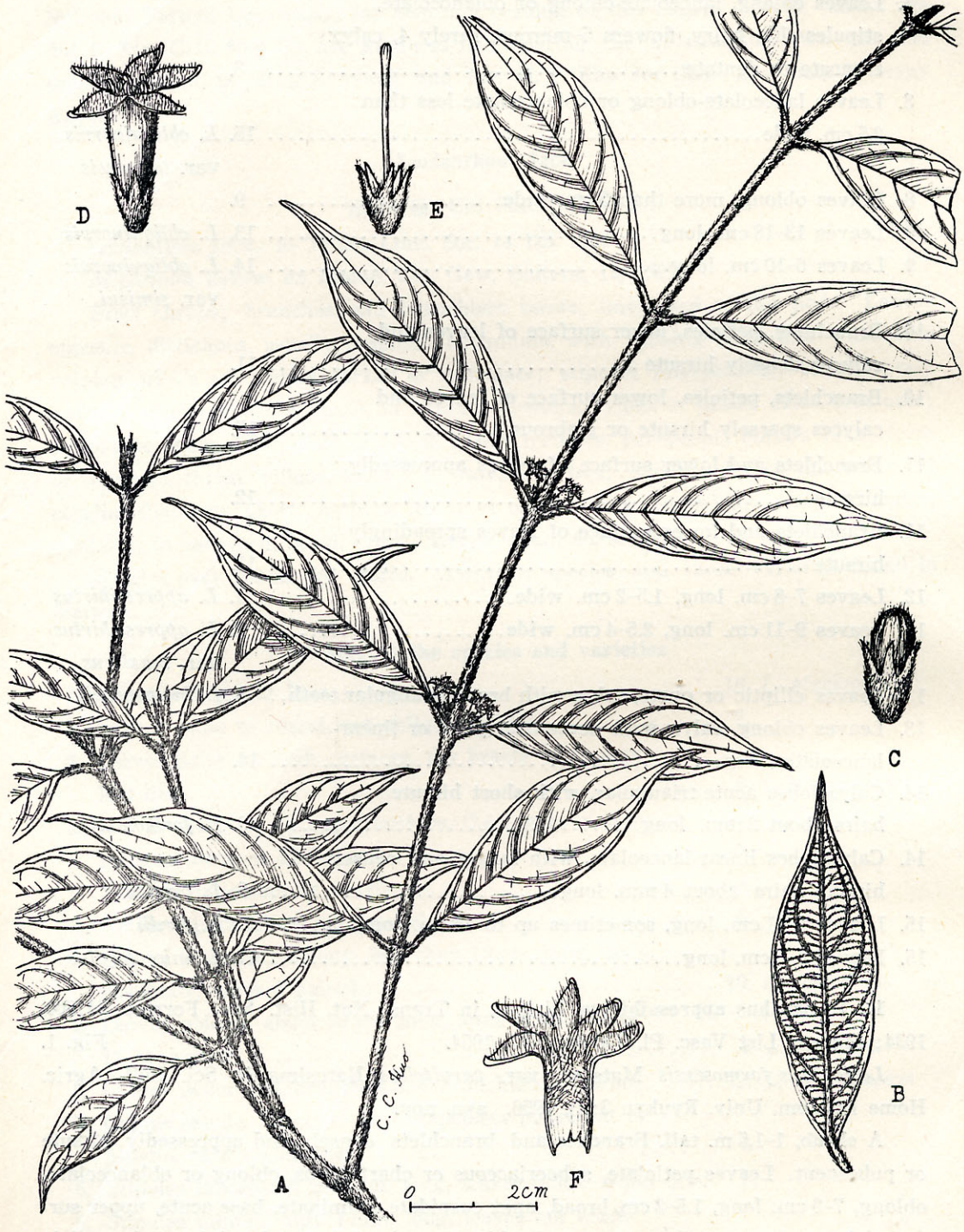


Fig. 1. *Lasianthus appressihirtus* Simizu

A. flowering branch. B. leaf, under surface. C. flower bud. D. flower. E. flower, corolla removed. F. corolla.

hirsute, 2-2.5 mm. long, 5-dentate; corolla white, 8 mm. long, 5-lobed, glabrous outside, villose inside. Fruits globular. Seeds 5.

Chinese Name: 密毛雞屎樹 Mi Mao Chi Shih Shu (New Chinese name)

Japanese Name: Suzunari-ruriminoki

Habitat: In broad-leaved forests in the northern part of the island.

Specimens examined:

Taipei Hsien: Habun, *T. Suzuki* 16383 (Type!); Tung-hou-chi, *H. Simizu* 2776, 2778, 3519; Tonroku, *H. Simizu* 3395: Li-mou-yen, *T. Suzuki* 18896; Kan-kou, *S. Sasaki* Nov. 1932.

Distribution: Taiwan and Ryukyu.

Note: This species is easily distinguished by the very densely appressed hirsute hairs on the branchlets and the under surface of leaves and by the much smaller leaves being oblanceolate-oblong in outline. Yamazaki treated *L. formosensis* Mats. var. *parvifolius* Hatusima as a synonym of *L. curtisii* Gamble et King. After careful study of the specimen from Okinawa (Yo-na-ha Gaku, *T. Kanasiro* No. 1974, Dec. 30, 1939) we found this species is exactly the same as *L. appressihirtus* Simizu.

2. Lasianthus appressihirtus Simizu var. **maximus** Simizu in Sched. Fig. 2.

Folia petiolata, subcoriacea vel chartacea, elongato-oblonga vel oblonga, 9–11 cm. longa, 2.5–4 cm. lata.

Leaves petiolate, subcoriaceous or chartaceous, elongate-oblong or oblong, 9–11 cm. long, 2.5–4 cm. wide.

Chinese Name: 大葉密毛雞屎樹 Ta Yeh Mi Mao Chi Shih Shu (New Chinese name)

Japanese Name Oobauznari-ruriminoki

Habitat: In broad-leaved forests of the northern part of the island.

Specimen examined:

Taipei Hsien; Habun, *T. Suzuki* ST 16801, (May. 28, 1937 Type!) ST. 16733; Tung-hou-chi, *H. Simizu* 2778, 3534; Karamoti, *H. Simizu* 3535.

Distribution: Endemic.

Note: In 1942, Simizu gave a new name, namely *Lasianthus appressihirtus* Simizu var. *maximus* Simizu to this plant. Excepting a new name on the label, no description of this new variety had been made by the nominator. The type specimen is preserved in the Herbarium of National Taiwan University. This new variety differs from the original species by the larger leaves, being 9–11 cm. long and 2.5–4 cm wide.

3. Lasianthus bunzanensis Simizu, in Trans. Nat. Hist. Soc. Formos. **34**:301, 1944; Masam. List Vasc. Pl. Taiwan 117, 1954. Fig. 3.

A shrub attaining 1.5 m. tall. Branches and branchlets densely villose or hirsute. Leaves petiolate, thickly membranous or chartaceous, elliptic or obovate, 7–10 cm. long, 3–5 cm. broad, apex cuspidate-acuminate or acuminate, base acute or obtuse, upper surface glabrous, lower surface densely tomentose, veins 4–5 paired, veinlets



Fig. 2. *Lasianthus appressihirtus* Simizu var. *maximus* Simizu, var. nov.

A. & B. flowering branches. C. leaf, under surface. D. flower. E. flower, corolla removed. F. corolla.

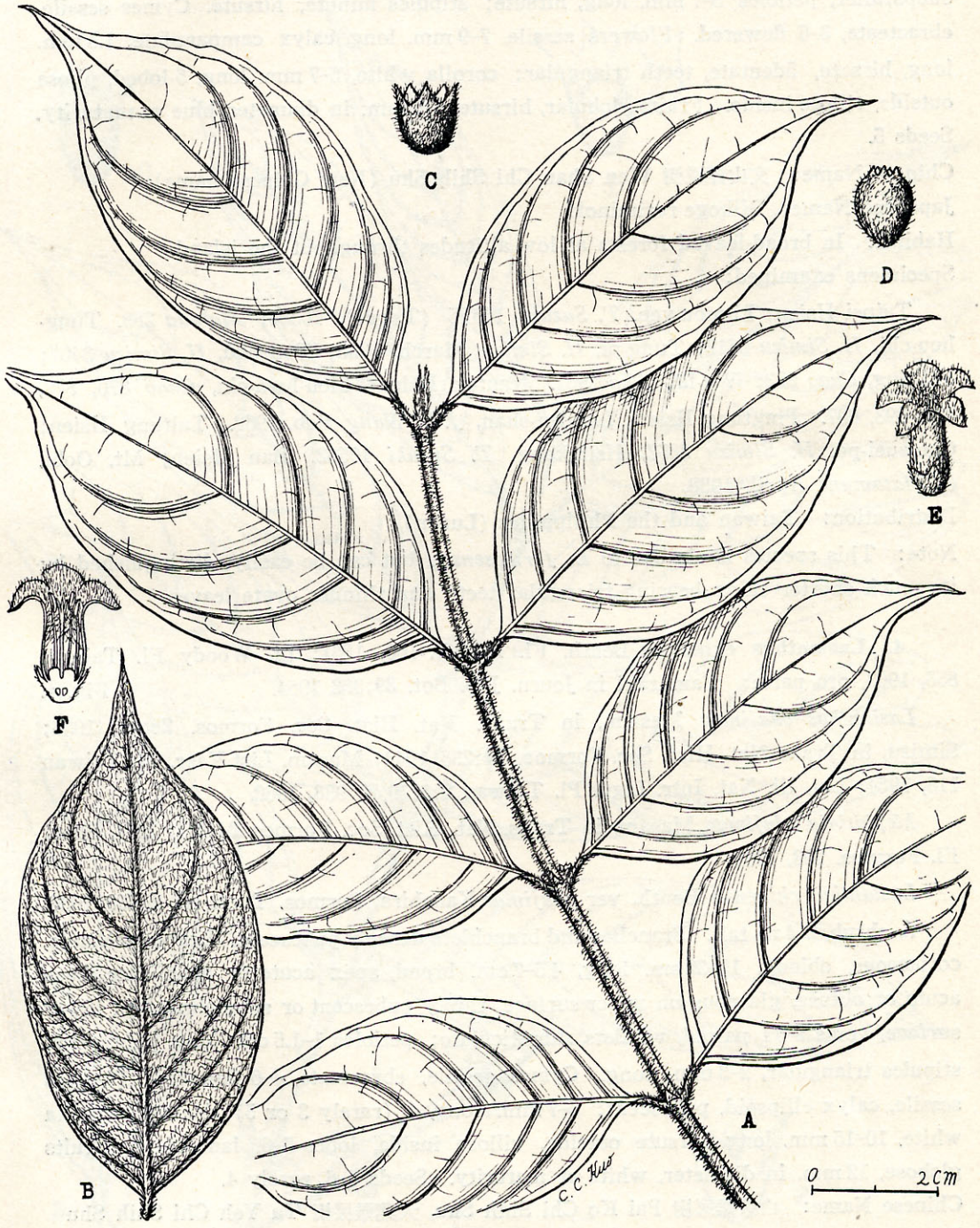


Fig. 3. *Lasianthus bunzanensis* Simizu

A. branch, with immature fruits. B. leaf, under surface. C. calyx and ovary. D. immature fruit. E. flower. F. flower, vertical section.

subparallel; petioles 5–7 mm. long, hirsute; stipules minute, hirsute. Cymes sessile, ebracteate, 3–6 flowered. Flowers sessile, 7–9 mm. long, calyx campanulate, 1.5 mm. long, hirsute, 5dentate, teeth triangular; corolla white, 6–7 mm. long, 5-lobed, pilose outside, villose inside. Fruits globular, hirsute, 5–6 mm. in diameter, blue at maturity. Seeds 5.

Chinese Name: 文山雞屎樹 Wen Shan Chi Shih Shu (New Chinese name)
Japanese Name: Nikoge-ruriminoki
Habitat: In broad-leaved forests at low altitudes throughout the island.
Specimens examined:

Taipei Hsien; Li-mou-yen, *T. Suzuki* 16385 (Type!), 16384; *Matuda* 289. Tung-hou-chi, *H. Simizu* 3512; Tung-pi, *H. Simizu* March, 1038; Tonroku, *H. Simizu* 3407; Shi-ting, *Chao* 952; Wu-lai, *Chao* 961. Nantou Hsien; Lien-hwa-chi, *Chao* 870, 877, 885, 898, 907. Pingtung Hsien; Lan-jen-shan, *J. L. Wang* Feb. 1962. Taitung Hsien; Chu-suei-po, *H. Simizu* 3657, Hsin-kang, *T. Suzuki* 19582. Ilan Hsien; Mt. Oobi, *G. Masamune* April, 1938.

Distribution: Taiwan and the Philippines (Luzon)

Note: This species is similar to *L. formosensis*, but can be easily distinguished by its much shorter calyx bearing triangular teeth and thinner ovate leaves.

4. Lasianthus chinensis Benth. Fl. Hongk. 160, 1861; Li, Woody Fl. Taiwan 855, 1963, pro parte: Yamazaki in Journ. Jap. Bot. **39**;352 1964. Fig. 4.

Lasianthus odajimae Masam., in Trans. Nat. Hist. Soc. Formos. **28**:45, 1938; Simizu, in Trans Nat. Hist. Soc. Formos. **34**:238, 1944; Masam. List Vasc. Pl. Taiwan 118, 1954; Liu, Ill. Nat. Intr. Lign. Pl. Taiwan 2:1119, f. 938, 1962.

Mephitidia odajimae Masam. in Trans. Nat. Hist. Soc. Formos. **24**:211, 1934, Short Fl. Formos. 203, 1936.

Lasianthus chinensis Benth. var *odajimae* Kanehira, Formos. Trees ed. 2, 669, 1936.

A shrub, 2–4 m. tall. Branches and branchlets densely pubescent. Leaves petiolate, coriaceous, oblong, 15–25 cm. long, 4.5–7 cm. broad, apex acute or acuminate, base acute or obtuse, glabrous on upper surface, thinly pubescent or subglabrous on lower surface, veins 9–11 paired, veinlets subreticulate; petioles 1–1.5 cm. long, pubescent; stipules triangular, 2–3 mm. long. Cymes sessile, ebracteate, 4–6 flowered; Flowers sessile, calyx ellipsoid, pubescent; 5–7 mm. long, 4 (rarely 3 or 5) dentate; corolla white, 10–15 mm. long, hirsute outside, villose inside, lobes 5–6, lanceolate. Fruits globose, 12 mm. in diameter, white at maturity. Seeds 5–6, rarely 4.

Chinese Name: 白果雞屎樹 Pai Ko Chi Shih Shu, 大葉雞屎樹 Ta Yeh Chi Shih Shu
Japanese Name: Sugudai-ruriminoki
Habitat: In broad-leaved forests at low altitudes in the northern part of the island.
Specimens examined:

Taipei Hsien: Mu-chu Shan, *S. Suzuki* 12206; Shi-lin, *K. Odashima* 74; Wen-shan,



Fig. 4. *Lasianthus chinensis* Benth.

A. flowering branch. B. leaf, under surface. C. calyx and ovary. D. calyx and ovary, showing the inner side of calyx-tube. E. calyx and ovary, vertical section.

S. Sasaki Aug. 12, 1930; Nei-hu, *G. Masamune* March 2, 1944; Wu-lai, *Matuda* July 25, 1918.

Distribution: Taiwan, South China Mainland and Indo-China

Note: This species is similar to *L. obliquinervis*, but differs from the latter by the reticulate veinlets and larger leaves.

5. Lasianthus curtisii King et Gamble, in As. Soc. Beng. **73**:128, 1904; Simizu, in Trans. Nat. Hist. Soc. Formos. **34**:300, 1944; Masam., List Vasc. Pl. Taiwan 118, 1954; Liu, Ill. Nat. Intr. Lign, Pl. Taiwan 2:1113, f. 932, 1962. Yamazaki, in Journ. Jap. Bot. **39**:352, 1964. Fig. 5.

Lasianthus formosensis Matsum. var. *hirsutus* Matsum., in Bot. Mag. Tokyo **15**:17, 1901; Matsum. et Hay. Enum. Pl. Formos. 196, 1906; Hay., Icon. Pl. Formos. 2: 99, 1912; Masam., in Trans. Nat. Hist. Soc. Formos. **30**; 339, 1940.

Mephitidia formosensis (Matsum.) Nakai var. *hirsuta* (Matsum.) Nakai, Trees & Shrubs Jap. ed 1:394, 1922; Sasaki, List. Pl. Formos. 382, 1928; Masam., Short Fl. Fl. Formos. 203, 1936.

A shrub, 1–2 m. tall. Branches and branchlets densely hirsute. Leaves petiolate, chartaceous or subcoriaceous, oblong or lanceolate-oblong, 5–8 cm. long, 2–3 cm. broad, apex cuspidate-acuminate, base acute or obtuse glabrous on upper surface, densely hirsute on lower surface; veins 5–6–paired; veinlets subparallel; petioles 5 mm. long, densely hirsute; stipules minute. Flowers sessile, 8–10 mm. long; calyx campanulate, hirsute, 5 mm. long, lobes 5, linear-lanceolate; corolla white, 7–8 mm. long, 5–lobed, outside hispid, inside villose, mouth hairy. Fruits ovoid-globular, hirsute, 5 mm. in diameter. Seeds 5.

Chinese Name: 柯氏雞屎樹 Ko Shi Chi Shih Shu

Japanese Name: Ke-sinten-ruriminoki

Habitat: In broad-leaved forests at low altitudes throughout the island.

Specimens examined:

Taipei Hsien: Wu-lai, *Chao* 965; Shi-ting, *Chao* 946; Li-mou-yen, *T. Suzuki* 16597; Karamoti, *H. Simizu* 3954; Tung-hou-chi, *H. Simizu* 2774; Kan-kou *Yamamoto* July 1938; Dec. 1926; *Sasaki* 380561; Tonroku, *T. Suzuki* 19255. Nantou Hsien: Lien-hwa-chi, *S. Sasaki* Aug. 1929, *Keng, Liu, et Kao* July 1955, *K. Mori* July 1936, *Chao* 868, 881, 884, 886, 889, 893, 899, 902, 906. Chi-tou, *S. Sasaki* Dec. 1933; Hakuyo-zan, *T. Suzuki* 10773. Taitung Hsien: Chu-suei-po, *H. Simizu* 3639; Chin-suei-ying, *H. Simizu* 3880. Ilan Hsien: Mt. Oobi, *G. Masamune* April 1938.

Distribution: Ryukyu, Taiwan, Indo-China, South China Mainland, Malay Peninsula.

Note: This species is very closely related to *L. formosensis*, but differs from the latter by the following characteristics: 1). the whole plant with densely hirsute hairs, 2). the calyx-tube cleft nearly to the base with lobes linear-lanceolate in outline and 3). the leaves much smaller.



Fig. 5. *Lasianthus cyanocarpus* Jack.

A. flowering branch. B. leaf, under surface. C. outer bract. D. inner bracts. E. calyx and ovary.

6. Lasianthus cyanocarpus Jack, in Trans. Linn. Soc. **14**:125, 1825; Benth, Fl. Hongk. 160, 1861; Hook. f., Fl. Brit. Ind. 3:167, 1882: Matsum., in Bot. Mag. Tokyo **15**:16, 1901: Matsum. et Hay., Enum. Pl. Formos. 198, 1906; Hay., Icon. Pl. Formos. 2:98, 1912; Masam., List. Vasc. Taiwan 118; Liu, Ill. Nat. Intr. Lign. Pl. Taiwan 2: 1114, f. 933, 1962; Li, Wood. Fl. Taiwan 855, 1963. Fig. 6.

Mephitidia cyanocarpa DC. Prodr. 4:452, 1830; Nakai, Trees & Shrubs Jap. ed. 2, 528, 1927; Masam., Short Fl. Formos. 203, 1936.

A shrub 1–1.5 m. tall, entirely hairy. Branches and branchlets hairy at length glabrous. Leaves petiolate, subcoriaceous or chartaceous, oblong, 15–20 cm. long, 5–6 cm. broad, apex acuminate, base acute; veins 7–10 paired, veinlets subparallel; petioles 10–15 mm. long; stipules lanceolate, triangular, 8–10 mm. long. Cymes sessile, 3–4 flowered, covered with many persistant leafy bracts. The outer bracts ovate-lanceolate, 2–3 cm. long, with distinct veins, the inner ones linear, much smaller. Flowers sessile, 8–10 mm. long; calyx as long as the corolla; corolla glabrous inside, about 8 mm. long. Fruits ovoid-globular, 6–7 mm. in diameter, blue at maturity. Seeds 5.

Chinese Name: 毛雞屎樹 Mao Chi Shih Shu

Japanese Name: Taiwan-ruriminoki

Habitat: Scattered under the broad-leaved forests at low altitudes on Hengchun peninsula and Botel Tobago (Orchid Island). It is known only from Wulai in the northern parts of Taiwan.

Specimens examined:

Taipei Hsien: Wu-lai *S. Sasaki* April 1918, *Sasaki* 24291 (TAIF). Pingtung Hsien: Nan-jen-shan *Matsuda* 24293 (TAIF), 24294 (TAIF). Taitung Hsien: Chu-suei-po, *H. Simizu* 3776: Lanyu (Botel Tobago), *T. Suzuki et Fukuyama* Sept. 1934, *S. Sasaki* June 1926; Kuarukusu, *Hayata et Sasaki* 24292 (TAIF).

Distribution: Taiwan, South China Mainland, Ryukyu, and India.

Note: This species is characterized by its hairy habit and conspicuous leaf-like bracts surrounding the base of flowers.

7. Lasianthus fordii Hance, in Journ. Bot. 324, 1885; Yamazaki in Journ. Jap. Bot. **39**:352, 1964. Fig. 7.

Lasianthus tashiroi Matsum., in Bot. Mag. Tokyo **15**:37, 1901; Matsum. et Hay., Enum. Pl. Formos. 197, 1906; Merr. in Philip. Journ. Sci. 2 Bot. 306, 1907: Hay., Icon. Pl. Formos. 2:99, 1912; Kanehira, Formos. Trees ed. 2, 671, 1936; Simizu in Trans. Nat. Hist. Soc. Formos. **34**:301, 1944; Masam., List Vasc. Pl. Taiwan 118, 1954; Liu, Ill. Nat Intr. Lign. Pl. Taiwan 2:1121, f. 940, 1962; Li, Wood. Fl. Taiwan 855, 1963, pro parte.

Mephitidia tashiroi (Mats.) Nakai, Trees & Shrubs Jap. ed. 1, 396, 1922; Sasaki, List Pl. Formos. 382, 1928; Masam., Short Fl. Formos. 203, 1936; Liu, Sasaki & Keng, in Quart. Journ. Taiwan Museum. 8:322, 1955.

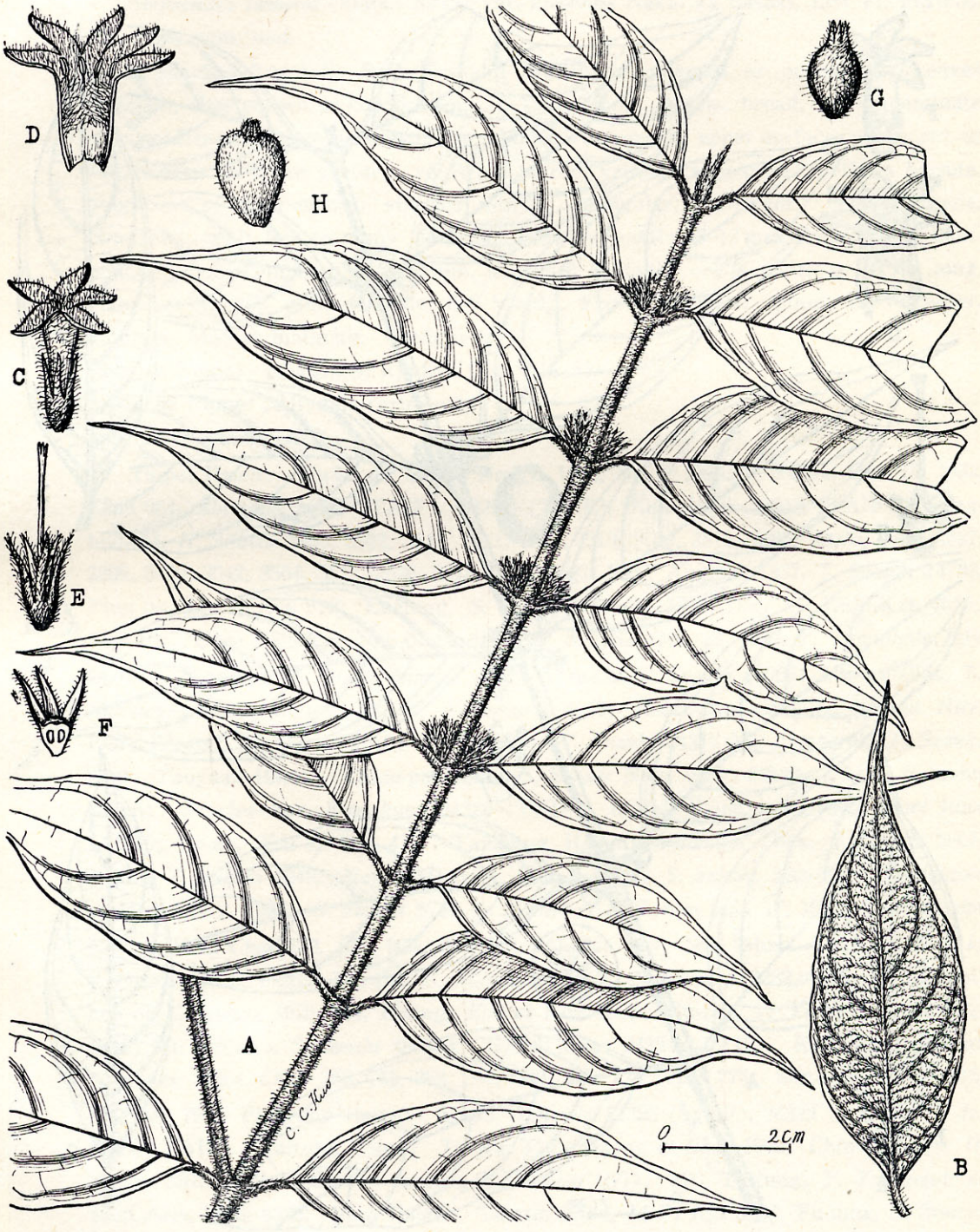


Fig. 6. *Lasianthus curtisii* King et Gamble

A. flowering branch. B. leaf, under surface. C. flower. D. corolla. E. flower, corolla removed. F. calyx and ovary, vertical section. G. immature fruit, H. mature fruit.

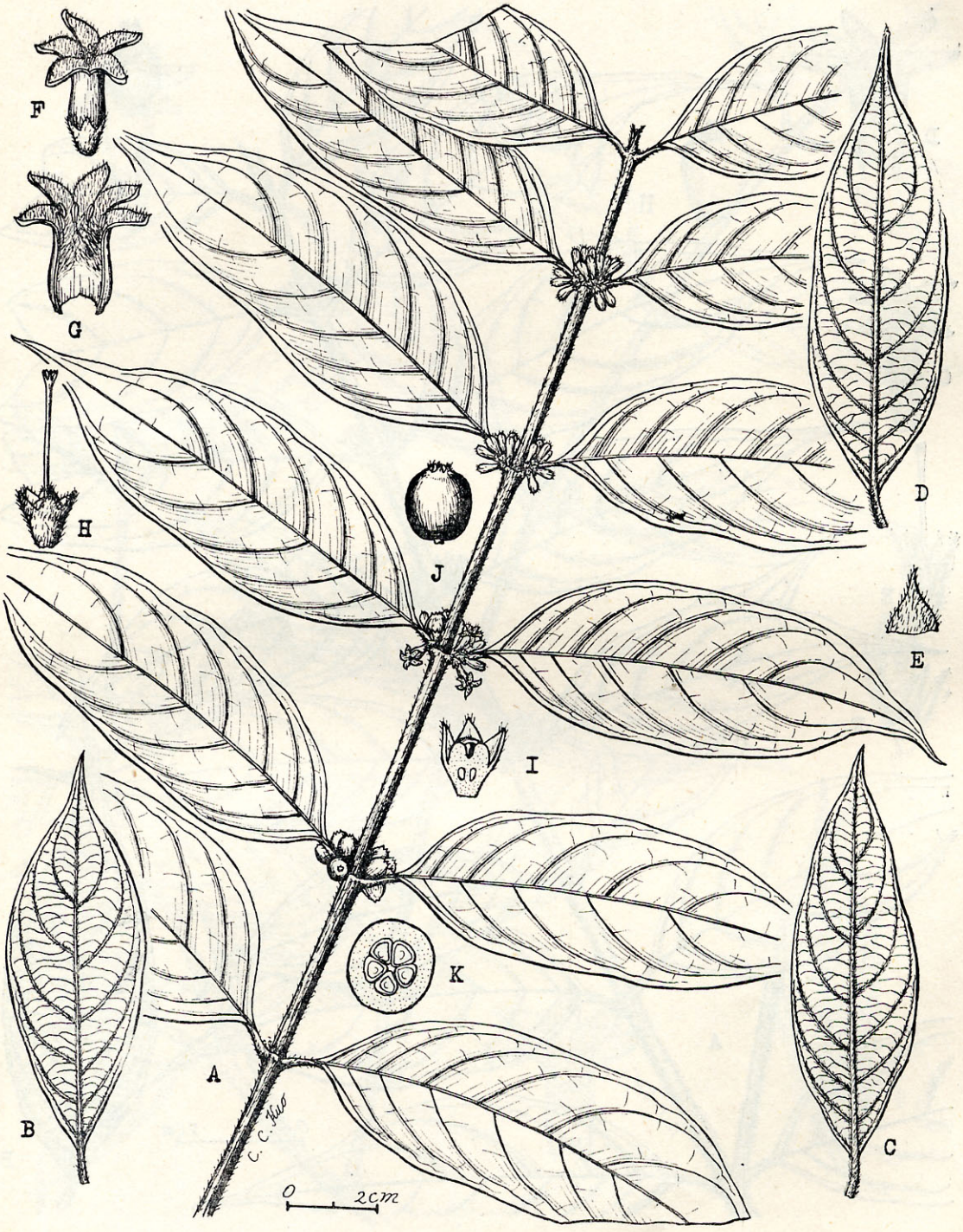


Fig. 7. *Lasianthus fordii* Hance

A. flowering branch. B. C. & D. leaves, under surface. E. stipule. F. flower. G. corolla. H. flower, corolla removed. I. calyx and ovary, vertical section. J. mature fruit. K. cross section of fruit.

Mephitidia tashiroi (Mats.) Nakai var. *kotoensis* Nakai ex Sasaki, List Pl. Formos. 382, 1928, nom. nud.

A shrub, 1–2 m. tall. Branches and branchlets glabrous or pubescent. Leaves petiolate, chartaceous or subcoriacous, 6–15 cm. long, 2–6 cm. broad, apex acuminate or cuspidate-acuminate, base acute or obtuse, glabrous on upper surface, pubescent or subglabrous on lower surface, veins 5–8 paired, veinlets subparallel, petioles hirsute, pubescent or subglabrous; stipules minute, triangular, pubescent. Cymes sessile, ebracteate, with few to many flowers. Flowers sessile, 8–12 mm. long; calyx campanulate, pubescent or hirsute, 2 mm. long, 5–6 dentate; corolla white, 6–10 mm. long, glabrous outside, villose inside, 5–6 lobed. Fruits globular, 6 mm. in diameter, glabrous, blue at maturity. Seeds 5–6.

Chinese Name: 琉球雞屎樹 Ryukyu Chi Shih Shu

Japanese Name: Miyama-ruriminoki

Specimens examined:

Taipei Hsien: Wu-lai, *S. Suzuki* Nov. 8, 1938, No. 9, 1928., *S. Sasaki* Oct. 16, 1932, *Chao* 964, *Shimada* 24298 (TAIF), 28299 (TAIF), *Kawakami* 24318 (TAIF); Tung-hou-chi, *H. Simizu* 3953, 3522, 3544, 3511, 3523, 3513, 3509, 3514, 2525, 28076, 3505, 2527, 2809, 3409, 3542, 3504, 3517, 2526, 3518, 3520, 3521, 3507, Aug. 20, 1937, *T. Suzuki* 14782. Ping-lin, *Lee et Kou* 515; Keelung, *S. Sasaki* Nov. 26, 1933, Dec. 17, 1933 Kao 4315; Shih-ting, *Chao* 950; Kan-kou, *S. Sasaki* Nov. 3, 1932, Oct. 28, 1932, *Y. Yamamoto* July 24, 1938; Tung-pi, *H. Simizu* March 1938; A-yu-chi *T. Suzuki* 18995; Mu-tzu-shan, *T. Nakawura* 4068; Chu-tzu-hu, *T. Nakamura* 4015; Hsiao-chu-keng, *H. Simizu* Nov. 1937; Pei-tou, *H. Simizu* 1619; Mt. Sendan, *T. Suzuki* 7431; Mt. Tanoerei, *T. Suzuki* 7379. Taoyuan Hsien: Chiao-pan Shan, *S. Sasaki* Nov. 1915. 24300 (TAIF) Hsinchu Hsien: Wu-chu-shan, *Kawakami* 24320 (TAIF) Miaoli Hsien: Ta-tung, *Mori* June 1, 1910; Ta-an, *Kou et Kao* 471. Taichung Hsien: Pa-hsien Shan, *S. Sasaki* 2807, 380562, *T. Suzuki* 5948. Nantou Hsien: Lien-hwa-chi, *S. Sasaki* 380558, *Y. Yamamoto et Mori* No. 2, 1932. *S. Suzuki* 5784, *S. Hibino et S. Suzuki* July 17, 1935; *Y. Hashioka* Nov. 2, 1932, *Chao* 872, 871, 905, 876, 883, 901, 905, 900; Sun Moon Lake *Y. Kudo et S. Sasaki* 15356, 15188; Wu-she, *G. Masamune et T. Nakamura* 2282, 2275; Ching-suei-kou, *T. C. Huang* 1926, 244, *Huang, Kou et Kao* 1022; Yu-chi, *Y. Yamamoto* Oct. 22, 1929; Mt. Baibara, *S. Sasaki* 380553. Suei-li *Mori* 24324 (TAIF) Kaohsiung Hsien: Nan-fong Shan, *Chao* 758, 751, 768, 760, 749, 765, 732, 770, 778; San-ping, *Chao* 715, 779, 796, 790. Pingtung Hsien: A-hou, *Matsuda* 24328 (TAIF), 24329 (TAIF), *T. Ito* 24326 (TAIF). Taitung Hsien: Ta-wu, *T. I. Chuang et Chao* 1996; Chin-suei-yen, *H. Simizu* 3607, 3633, 3652; Chu-suei-po, *H. Simizu* 3777; Mt. Taitung, *Y. Yamamoto et Mori* 8324, 8326, 8325. I lan Hsien: Ta-yun Shan, *M. T. Kao* 3196; Fu-lung, *H. Simizu* 1573; Ku-lu, *Chao* 622, 620. Lanyu (Botel Tobago), *S. Suzuki et Fukuyama* 1195, *Y. Yamamoto* June 9, 1947. Kuei-shan Tao, *G. Masamune et Suzuki* July 2, 1932.

Distribution: Taiwan, South China Mainland, Ryukyu, the Philippines and Japan.

Note: This is a widely distributed species. The leaves of this species vary in size, being usually from 2–6 cm. in width and 6–15 cm. in length. The branches and lower surfaces of the leaves are also changeable from pubescent to subglabrous. This may be a group of several forms or varieties and needs further study.

8. **Lasianthus formosensis** Matsum., in Bot. Mag. Tokyo **15**:17, 1901; Matsum. & Hay., Enum. Pl. Formos. 196, 1906; Hay, Icon. Pl. Formos. 2:99, 1912; Mak. & Nemoto, Fl. Jap. ed. 2:1117, 1932; Kaneh., Formos. Trees ed. 2, 670, 1936, pro parte; Simizu, in Trans. Nat. Hist. Soc. Formos. **34**:300, 1944; Masam., List Vasc. Pl. Taiwan 118, 1954; Liu, Ill. Intr. Lign. Pl. Taiwan 2:1115, f. 934, 1962; Li, Wood Fl. Taiwan 857, 1963, pro parte. Fig. 8.

Mephitidia formosensis (Matsum.) Nakai, Trees & Shrubs Jap. ed. 1, 394, 1922; Sasaki, List Pl. Formos. 382, 1928; Masam., Short Fl. Formos. 203. 1936, pro parte.

Lasianthus fordii Hance var. *pubescens* (Mats.) Yamazaki, in Journ. Jap. Bot. **39**: 352, 1964. syn. nov.

Lasianthus tashiroi Matsum. var. *pubescens* Matsum. in Bot. Mag. Tokyo **15**:17, 1901.

Lasianthus formosensis Matsum. var. *liukiuensis* Matsum. ex Sakaguchi, Gen. Ind. Fl. Okinawa 11, 1924.

Lasianthus tenuicaudatus Merr., in Lingnan Sc. Journ. **7**:324, 1929. syn. nov.

A shrub, 1–2 m. tall. Branches and branchlets densely villose or hirsute. Leaves petiolate, chartaceous or subcoriaceous, oblong or ovate-elliptic, 7–12 cm. long, 2.5–5 cm. broad, apex acuminate or cuspidate-acuminate, base acute or obtuse, glabrous on upper surface, pubescent or tomentose on lower surface, veins 6–7-paired, veinlets subparallel; petioles hirsute, 5–8 mm. long; stipules hirsute, triangular, 2 mm. long. Cymes sessile, ebracteate, 6–9 flowered; flowers sessile, 10 mm. long; calyx campanulate, hirsute, 4 mm. long, 5 long, 5 lobes acute-triangular, corolla white, villose outside, tomentose inside, lobes 5, mouth hairy. Fruits ovoid-globular, glabrous or nearly so, 5 mm. in diameter, blue at maturity. Seeds 5.

Chinese Name: 臺灣雞尿樹 Taiwan Chi Shih Shu

Japanese Name: Sinten-ruriminoki

Habitat: In broad-leaved forests at low altitudes in the northern and southern parts of the island.

Specimens examined:

Taipei Hsien: Tung-pi, *H. Simizu* March 1938; Wu-lai, *Chao* 966; Mt. A-yu, *H. Simizu* March 1517; Shih-ting, *Chao* 953; Hsin-tien, *H. Simizu* Masch 1938, *Chao* 640, 643; Rara Shan, *S. Sasaki* Oct. 1930; Mu-chu-shan, *H. Simizu* 474; Keelung, *Kao* 4316. Taitung Hsien: Chu-suei-po, *H. Simizu* 3803, 3640. Ilan Hsien: Mt. Oobi, *G. Masamune* April 1938.

Distribution: Taiwan, South China Mainland, Ryukyu and Indo-China.

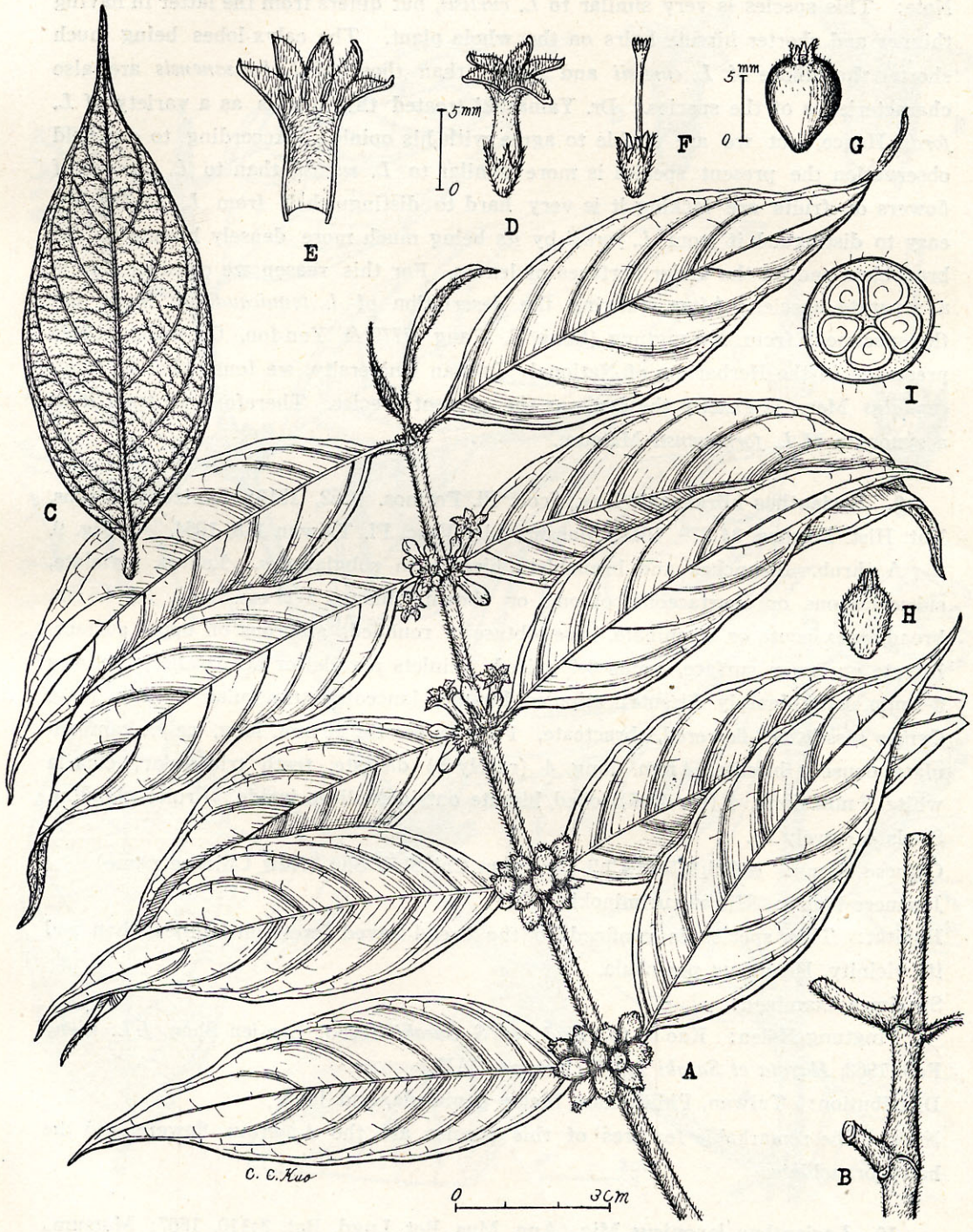


Fig. 8. *Lasianthus formosensis* Matsum.

A. flowering branch. B. a part of branch, showing the stipule and the node. C. leaf, under surface. D. flower. E. corolla. F. flower, corolla removed. G. mature fruit. H. immature fruit. I. mature fruit, cross section.

Note: This species is very similar to *L. curtisii*, but differs from the latter in having thinner and shorter hirsute hairs on the whole plant. The calyx-lobes being much shorter than those of *L. curtisii* and longer than those of *L. bunzanensis* are also characteristics of the species. Dr. Yamazaki treated this species as a variety of *L. fordii* Hance, but we are unable to agree with his opinion. According to our field observation the present species is more similar to *L. curtisii* than to *L. fordii*. If flowers or fruits are lacking it is very hard to distinguish it from *L. curtisii* but easy to distinguish it from *L. fordii* by its being much more densely hirsute on the branchlets and on the under surfaces of leaves. For this reason we consider this is a separate species. After studying the description of *L. tenuicaudatus* Merr. and the specimens from Kwangtung (Suni, C. Wang 37779 & Yun-fon, C. Wang 37329) preserved in the Herbarium of National Taiwan University, we found that *L. tenuicaudatus* Merr. is exactly the same as the present species. Therefore we treat it as a synonym of *L. formosensis* Matsum.

9. Lasianthus hiiranensis Hay., Icon. Pl. Formos. 9:62, 1919; Simizu, in Trans. Nat. Hist. Formos. **34**:239, 1944; Masam., List Vasc. Pl. Taiwan 118, 1954. Fig. 9.

A shrub. Branches and branchlets hirsute to subglabrous. Leaves petiolate, subcoriaceous or chartaceous, oblong or obovate-oblong, 8–11 cm. long, 3.5–4.5 cm. broad, apex acute or acuminate, base obtuse or rounded, glabrous on upper surface, hirsute on lower surface, veins 6–7 paired, veinlets parallel or subparallel; petioles 6–9 mm. long, densely hirsute; stipules hirsute, lanceolate-triangular 6–8 mm. long. Cymes sessile 2–3-flowered, ebracteate. Flowers sessile, 10 mm. long, calyx campanulate densely hirsute, 4 mm. long, 4 (rarely 5) dentate, teeth triangular; corolla white, 7 mm. long, 4 (rarely 5) lobed, hirsute outside, villose inside. Fruits globular. Seeds 4 (rarely 5).

Chinese Name: 棲蘭山雞屎樹 Ch'i Lan Shan Chi Shih Shu (New Chinese name)

Japanese Name: Hiiran-ruriminoki

Habitat: This species is confined to the broad-leaved forets on Lan-jen Shan and its vicinity, Hengchun peninsula.

Specimes examined:

Pingtung Hsien: Kao-su-fu, *Kudo et S. Sasaki* 16086; Lan-jen Shan, *J. L. Wang* Feb. 1962. *Hayata et Sasaki* 24295 (Isotype TAIF)

Distribution: Taiwan, Philippines, Malay peninsula, and Java.

Note: The remarkable features of this species are the 4-merous flowers and the hairy branchlets.

10. Lasianthus japonicus Miq., Ann. Mus. Bot. Lugd. Bat. **3**:110, 1867; Matsum., et Hay., Enum. Pl. Formos. 197, 1906; Kanehira, Formos. Trees ed 2:781, 1936; Simizu, in Trans. Nat. Hist. Soc. Formos. **34**:302, 1944; Liu, Ill. Nat. Inter. Lign. Pl. Taiwan 2:1116, f. 935, 1962. Fig. 10.



Fig. 9. *Lasianthus hiiranensis* Hay.

A. flowering branch, B. leaf, under surface, C. stipule, D. flower, E. corolla, F. flower, corolla removed.



Fig. 10. *Lasianthus japonicus* Miq.

A. flowering branch. B. a part of branch. C. leaf, under surface. D. flower. E. calyx and ovary. F. immature fruit.

Lasianthus taiheizanensis Masam. et Suzuki, in Journ. Soc. Trop. Agr. Taihoku **2**:49, 1930; Kanehira, Formos. Trees ed 2:671, 1936; Masam., List Vasc. Pl. Formos. 118, 1954.

Lasianthus nebulosa Simizu, in Journ. Jap. Bot. 8:237, 1937.

Mephitidia japonicus Nakai, Trees & Shrubs Jap. ed. 2:524. fig. 238, 1927.

Mephitidia taiheizanensis Masam. et Suzuki, in Journ. Soc. Trop. Agr. **2**:49, 1930; Masam., Short Fl. Formos. 203, 1936.

A shrub. Branches and branchlets subglabrous or pubescent when young. Leaves petiolate, subcoriaceous or chartaceous, oblong or lanceolate-oblong, 9–15 cm. long, 2–3.5 cm. broad, apex cuspidate or cuspidate-acuminate, base acute, upper surface pubescent, veins 5–6-paired, veinlets reticulate, rarely subparallel; petioles pubescent or subglabrous, 7–10 mm. long; stipules minute, hirsute. Cymes peduncled or subsessile; bracts minute, hirsute, 2–3-flowered. Flowers sessile 10 mm. long; calyx campanulate, pubescent, 2–3 mm. long, 5-dentate, teeth triangular; corolla white, 8 mm. long, 5-lobed, glabrous outside, villose inside. Fruits globose, 5 mm. in diameter. Seeds 5.

Chinese Name: 日本雞尿樹 Jih Pen Chi Shih Shu

Japanese Name: Ruriminoki

Habitat: In broad-leaved forests from low to high altitudes throughout the island.

Specimens exmanined:

Taipei Hsien: Tung-hou-chi, *H. Simizu* 2750, 2692, *T. Suzuki* 14576, 14551; Karamoti, *H. Simizu* March 1937, *T. Suzuki* 16467; Habun, *T. Suzuki* 16796; Li-mou-yen, *T. Suzuki* 17054. Taoyun Hsien: Cha-tien Shan, *T. Suzuki* 4725. Nantou Hsien: Wu-she, *G. Masamune* 3268, 2456. Taitung Hsien: Ching-suei-ying, *H. Simizu* 3638. Hwalien Hsien: Tai-lu-ko-ta-shan, *S. Sasaki* June 1933.

Distribution: Taiwan, Japan and South China Mainland.

Note: The outstanding characteristic of this species is that the leaves have reticulate veinlets and the cymes are shortly peduncled.

11. Lasianthus microphyllus Elmer, Leafl. Philip. Bot. **5**:1870; 1913; Simizu, in Trans. Nat. Hist. Soc. Formos. **34**:238, 1944; Masam. List Vasc. Pl. Taiwan. 118, 1954. Fig. 11.

Lasianthus parvifolius (non Wight.) Hay. Icon. Pl. Formos. 9:63, 1919.

A shrub, 1 m. tall. Branches and branchlets slender, pubescent or subglabrous. Leaves petiolate, chartaceous or thickly membranous, elliptic or oblong, 4–6 cm. long, 2–3 cm. broad, apex acuminate, base acute or obtuse, upper surface glabrous, lower surface pubescent, veins 4–5-paired, veinlets subparalled, petioles 8 mm. long, hirsute, stipules minute, triangular, hirsute. Cymes sessile, 3–4 flowered, bracts minute, triangular, hirsute. Flowers sessile 10 mm. long, calyx campanulate, pubescent 2–2.5 mm. long, 5 dentate, corolla white, 8 mm. long, pubescent outside, villose inside, 4–5 lobed. Fruits globose, 5 mm. in diameter, blue at maturity. Seeds 5.



Fig. 11. *Lasianthus microphyllus* Elmer.

A. flowering branch. B. leaf, under surface. C. flower. D. calyx and ovary. E. corolla. F. immature fruit.

Chinese Name: 小葉雞屎樹 Hsiao Yeh Chi Shih Shu (New Chinese name).
Japanese Name: Kumoma-ruriminoki
Habitat: In broad-leaved forests at medium altitudes in the central and southern parts of the island.
Specimens examined:

Taipei Hsien: Tung-hou-chi, *H. Simizu* 27731, 3531, 3532, 3533; Ko-shan, *S. Sasaki* Nov. 1933. Taichung Hsien: Pa-hsien Shan, *T. Suzuki* 5648, *S. Sasaki* Oct. 1929. Nantou Hsien: Luan-ta Shan: *Mori* 24328 (TAIF). Kaohsiung Hsien: Nan-fong Shan, *Chao* 755 757. Taitung Hsien: Ching-suei-ying, *H. Simizu* 3845, 3891. *Kanehira* 24330 (TAIF).

Distribution: Taiwan, Philppines and Java
Note: This species is very closely related to *L. fordii*, but can be easily distinguished by the much smaller leaves which are usually less than 6 cm. long.

12. Lasianthus microstachys Hay., Icon. Pl. Formos. 9:63, 1920; Kanehira, Formos. Trees ed. 2:670, 1936; Masam., List Vasc. Pl. Taiwan 118, 1954; Liu, Ill. Nat. Intr. Lign. Pl. Taiwan 2:1117, f. 936, 1962.

Mephitidia microstachys (Hay.) Nakai, Trees & Shrubs Jap. ed. 2:528, 1927; Masam., Short Fl. Formos. 203, 1936. Fig. 12.

Lasianthus seikomontanus Yamamoto, in Journ. Soc. Trop. Agr. 7:148, 1935; Kanehira, Formos. Trees ed. 2:671, 1936; Masam., List Vasc. Pl. Taiwan 118, 1954, syn. nov.

Mephitidia seikomontanus (Yamam.) Masam., Short Fl. Formos. 203, 1936.

A shrub, attaining 1–2 m. tall. Branches and branchlets slender, glabrous. Leaves petiolate, chartaceous or subcoriaceous, oblong or oblong-lanceolate, 7–8 cm. long, 2.5–3 cm. broad, upper surface glabrous, lower surface densely hirsute on the midrib and veins, veins 5–6-paired, veinlets parallel or subparallel, petioles 3–5 mm. long, densely hirsute; stipules linear lanceolate, densely hirsute. Cymes peduncled, peduncles pubescent or subglabrous. Flowers subsessile, calyx campanulate, teeth 5, pubescent. Fruits globular, 5mm. in diameter, blue at maturity. Seeds 5.
Chinese Name: 薄葉雞屎樹 Po Yeh Chi Shih Shu
Japanese Name: Usuba-ruriminoki
Habitat: In broad-leaved forests at low altitudes thoughout the island.
Specimens examined:

Taipei Hsien: Tung-hou-chi, *H. Simizu* 2775, 2808, 3501, 3503, 3510, 3537, 3538, 3540, 3541, 3539, 3543, 3544, 3511; Wulai, *Chao* 963; Karamoti, *T. Suzuki* 16888, *H. Simizu* Aug. 1937; Li-mou-ven, *T. Suzuki* 16594; Rara-shan *Matsuda* 1705; Wen-shan, *S. Sasaki* 380557, *H. Simizu* 3402; Hsiao-a-yu Shan *T. Suzuki* 6436. Taichung Hsien: Pa-hsien Shan, *S. Sasaki* Nov. 23, 1922. *S. Sasaki* 24321 (TAIF). Nantou Hsien: Lien-hwa-chi, *S. Hibino* et *S. Suzuki* July 21, 1936, *Chao* 869, 878, 880, 891, 896. *S. Sasaki* 2432 (TAIF). Pingtung Hsien: Kao-su-fu, *Matuda* 1706. Taitung Hsien: Hsin-kang,

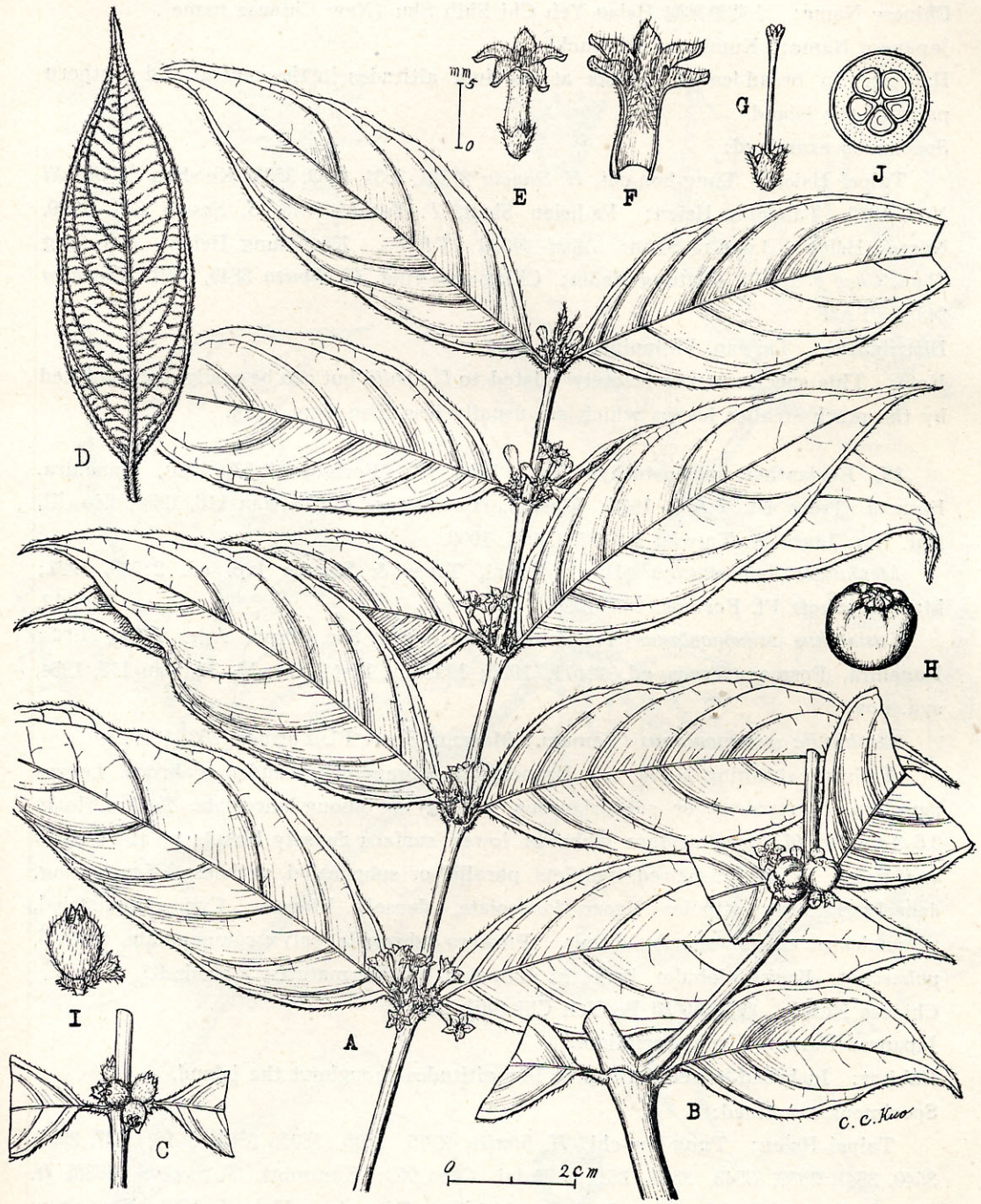


Fig. 12. *Lasianthus microstachys* Hay.

A. flowering branch. B. & C. parts of fruiting branches. D. leaf, under surface. E. flower. F. corolla. G. flower, corolla removed. H. mature fruit. I. cross section of fruit. J. a part of inflorescence with an immature fruit.

T. Suzuki 19657; Mt. Taitung, *Y. Yamamoto* 2468, (Type of *L. seikomontanus*), *Y. Yamamoto et Mori* 8294. Hwalien Hsien: Hwalien, *S. Sasaki* 380556. Ilan Hsien: Mt. Oobi, G. *Masamune* April 1938. Ochobi, *Hayata* 24331 (Mero-type TAIF) 24319 (TAIF)

Distribution: Endemic.

Note: This species is easily distinguished by the glabrous branchlets and the peduncled cymes. We have carefully examined both type specimens of *L. seikomontanus* Yamamoto (Y. Yamamoto 2468, Aug. 4, 1931,) and *L. microstachys* Hay., but cannot find any distinction between them. Therefore we treat *L. seikomontanus* as a synonym of *L. microstachys*.

13. Lasianthus obliquinervis Merr. in Philp. Journ. Sci. 1 suppl. 136, 1907; Yamazaki in Journ. Jap. Bot. **39**:351, 1964. Fig. 13.

Lasianthus nigrocarpus Masam., in Trans. Nat. Hist. Soc. Formos. **22**:222, 1932; Simizu, in Trans. Nat. Hist. Soc. Formos. **34**:240, 1944; Masam., List Vasc. Pl. Taiwan 118, 1954.

Lasianthus chinensis (non Benth.) Henry, List Pl. Formos. 51, 1896; Matum. in Bot. Mag. Tokyo **15**:16, 1901; Matsum. et Hay., Enum. Pl. Formos. 195, 1906; Hay., Icon. Pl. Formos. 2:98, 1906; Kanehira, Formos. Trees ed. 2:669, fig. 622, 1936. Li, Wood. Fl. Taiwan 855, 345, 1963, pro parte.

Mephitidia chinensis (non Champ.) Nakai, Trees & Shrubs Jap. ed. 1:382, 1922.

Mephitidia nigrocarpa Masam., in Trans. Nat. Soc. Formos. **22**:461, 1922; Short Fl. Formos. 203, 1936.

Lasianthus obliquinervis Merr. var. *nigrocarpus* (Masam.) Hatus. in Sci. Bull. Univ. Ryukyus **3**:23, 1956; Liu, Ill. Nat. Intr. Lign. Pl. Taiwan 2:1118, f. 937, 1962.

A shrub, 1.5–2.5 m. tall. Branches and branchlets pubescent. Leaves petiolate, coriaceous, oblong, 13–18 cm. long, 4–6 cm. broad, apex acute or acuminate, base acute, upper surface glabrous, lower surface thinly pubescent, veins 7–8 paired veinlets parallel or subparallel; petioles pubescent, 7–10 mm. long; stipules triangular, 4–5 mm. long, pubescent. Cymes sessile, ebracteate, 4–5 flowered; flowers sessile, 13 mm. long, calyx campanulate, 4 mm. long, 5 dentate, teeth tomentose; corolla white, 12–13 mm. long, hirsute outside, villose inside, lobes 5, ovate, 3–4 mm. long. Fruits ellipsoid, 10 mm. in diameter, black at maturity. Seeds 5.

Chinese Name: 雞屎樹 Chi Shih Shu

Japanese Name: Oba-ruriminoki

Habitat: In broad-leaved forests at low altitudes, very common throughout the island.

Specimens examined:

Taipei Hsien: Tsu-shan-yen, *H. Keng* 1043, *Y.R. Cheun et others* April 1961, Mori Oct. 11, 1931, *Chao* 630, *Shimada* 24279 (TAIF); Shi-lin, *H. Simizu* 1354; Ta-tung Shan, *S. Sasaki* Nov. 3, 1928; Yang-ming-shan, *H. Simizu*, Nov. 17, 1929, *H. Simizu*

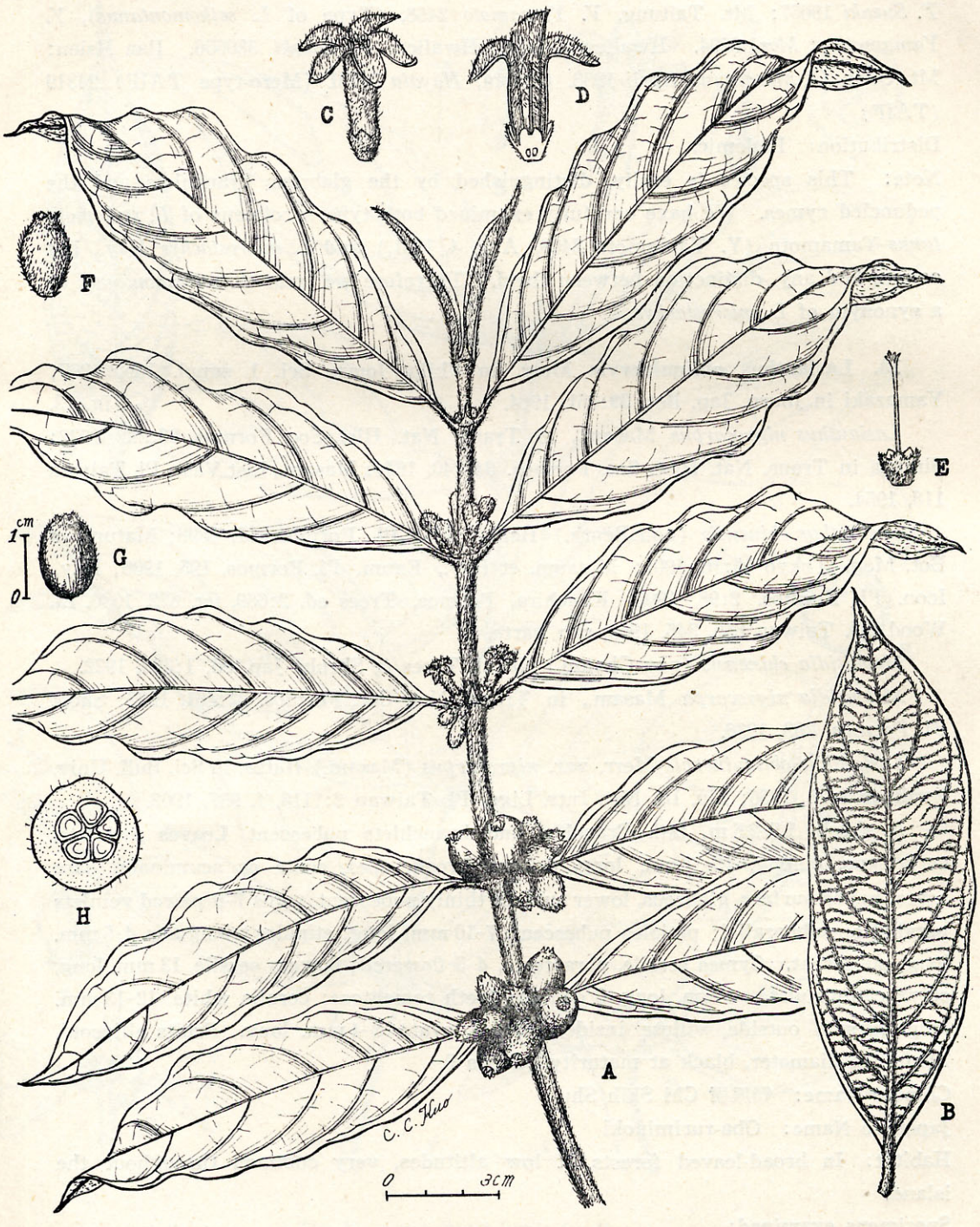


Fig. 13. *Lasianthus obliquinervis* Merr.

A. fruiting branch. B. leaf, under surface. C. flower. D. same, vertical section. E. same, corolla removed. F. immature fruit. G. mature fruit. H. cross section of fruit.

1445, 1449, 2130, 3278, *T. Tananka* 11124, *Chao* 363; Chu-chi, *H. Simizu* April 28, 1937; Wu-lai, *S. Suzuki* 10381; Kan-kou, *S. Sasaki* Oct. 29, 1932; Shi-ting, *Chao* 947; *Kanehira et Sasaki* 24282 (TAIF) Ta-pa, *S. Suzuki* 3419; Mu-tzu-shan, *T. Suzuki* May 10, 1931; Hsi-tzu *S. Sasaki* Nov. 16, 1930; Keelung, *S. Suzuki* 4491, *Y. Yamamoto* May 1931, *S. Sasaki* April 15, 1930, May 3, 1931; Taipei vinicity *G. Masamune* Oct. 13, 1931. *Sasaki* 24280 (TAIF). Taoyuan Hsien: Chiao-pan Shan, *Fauri* 24285 (TAIF). Nantou Hsien: Ching-suei-kou, *T. C. Huang* 1884; Puli, *Y. Kudo*, Yu-chi, *Y. Yamamoto* Oct. 22, 1929; Lien-hwa-chi, *Chao* 879. Kaohsiung Hsien: Kaohsiung, *Matsuda* July 8, 1919. Pingtung Hsien: Kao-su-fu, *Y. Kudo et K. Mori* 15981; Heng-chun, *T. Suzuki* 6151. Li-chiang *Matsuda* 24287 (TAIF). Hwalien Hsien: Hwalien, *Matuda* 1703, *S. Sasaki* Oct. 1909. *Kawakami* 24288 (TAIF) Fauri 24289 (TAIF). Ilan Hsien: Yuan Shan, *H. Simizu* 1519; Mt. Oöbi, *G. Masamune* April 24, 1938, April 24, 1938; Ku-lu, *Chao* 621. Lanyu (Botel Tobago): *Y. Kudo et K. Mori* 285. Kuei-shan Tao: *G. Masamune et S. Suzuki* July 3, 1932.

Distribution: Taiwan, Ryukyu, South China Mainland and the Philippines.

Note: This species is similar to *L. chinensis*, but can be easily distinguished from the latter by the parallel veinlets on the leaves. It is also near to *L. obliquinervis* Merr. var. *taitoensis* and *L. obliquinervis* Merr. var. *simizui*, but differs from the latter two by the much larger leaves.

14. Lasianthus obliquinervis Merr. var. **simizui** Liu et Chao, var. nov. Fig. 14.

Frutex, Rami et ramuli hirsuti vel pubescentes. Folia petiolata, coriacea vel subcoriacea, oblonga, 6–10 cm. longa, 2.5–4 cm. lata, apice acuta vel acuminata, basi acuta, margine integra vel subrepanda, supra glabra, subtus glabriuscula, sed ad costa venasque pubesenta, venis lateralibus primariis utrinque 6–8, valde arcuatis, venis secundariis subparallelis, petiolis 3–5 mm. longis, 1–1.5 mm. in diametro, pubescentibus, stipulis interpetiolaribus, triangularibus, 3.5–5 mm. longis, 0.5–1 mm. latis, pubescentibus, ad nodos promientibus. Cyma sessiles et fasciculata, bracteata, bracteis lanceolatibus, pubescentibus vel hirsutis, 1.5–2 mm. longis. Flos sessilis ebracteolatus, calyx campanulatus, 1 mm. longus. apice 5-dentatus, dentibus triangularibus ca. 1 mm. longis, apice acutus, ovarium inferius, 5-loculare, loculis 1-ovulatis. Drupa globosa, glabra, 5–6 mm. in diametro. Semina 5.

A shrub. Branches and branchlets densely hirsute. Leaves petiolate, coriaceous or subcoriaceous, oblong, 6–10 cm. long, 2.5–4 cm. wide, apex acute to acuminate, base acute, upper surface glabrous, lower surface subglabrous or thinly pubescent along the veins and veinlets, veins 6–8-paired, veinlets parallel or subparallel, petioles 3–5 mm. long, pubescent, stipules triangular, 3.5–5 mm. long, 0.5–1 mm. wide, pubescent. Cymes sessile, bracteate, bracts lanceolate, pubescent or hirsute, 1.5–2 mm. long. Flowers sessile, ebracteate, calyx campanulate, 1 mm. long, 5-dentate, ovary 5-celled, each cell with 1 ovule. Fruits globose, glabrous, 5–6 mm. in diameter. Seeds 5.

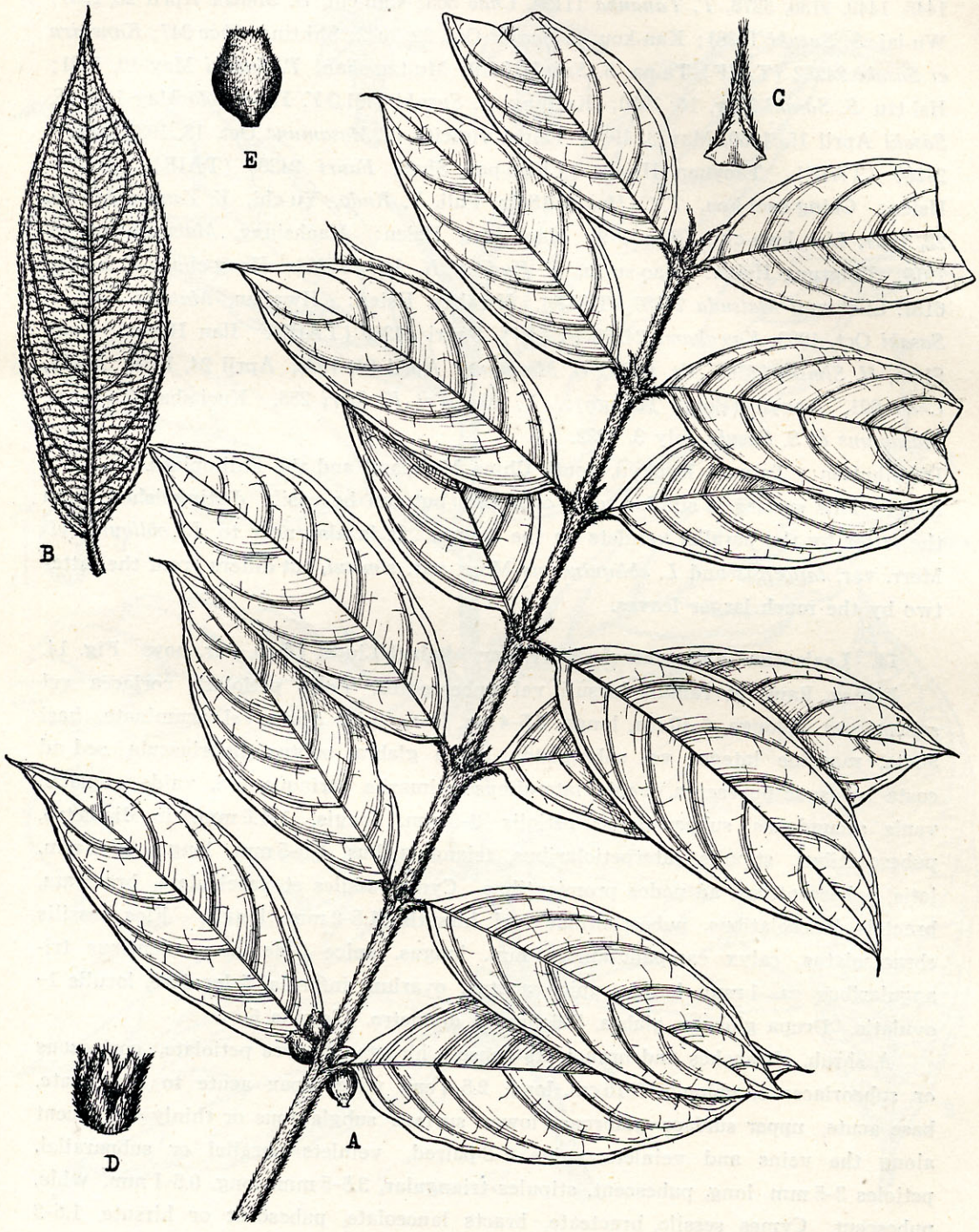


Fig. 14. *Lasianthus obliquinervis* Merr. var. *simizui* var. nov.

A. fruiting branch. B. leaf, under surface. C. stipule. D. calyx E. immature fruit.

Chinese Name: 清水氏雞屎樹 Ching Suei Shi Chi Shih Shu (New Chinese name)
Japanese Nname: Simizu-ruriminoki
Specimens examined:

Lan-yu (Botel Tobago), *Suzuki et Fukuyama* 777 (Sep. 1937)....Type; *L K H & C* 523 (Aug. 5. 1954), 482 Aug. 5, 1954); *T. I. Chuang & C. C. Hsu* 2447 (Aug. 17, 1958).
Distribution: Endemic.
Note: This new variety is named in honor of Dr. H. Simizu, a specialist in this field, who gave the variety name to Tshiro's species, namely, *Lasianthus tashiroi* Mats. var. *hirsutus* Simizu which is preserved in our herbarium. After careful study, we found that this variety is not closely related to *L. tashiroi* (now named is *L. fordii*). The latter has the stipules being shortly deltoid in outline and leaves which are greenish when dry, while the present variety has lanceolate stipules which are longer than those of *L. fordii* and with leaves turning dark brown when dry. The texture of the present species is much thicker than that of *L. fordii*. It is also easily distinguishable from the original species by the much smaller leaves. Also it very closely related to *L. obliquinervis* var. *taitoensis*, but easily distinguished from the latter by the broader leaves and the calyx-tube being dentate.

15. Lasianthus obliquinervis Merr. var. **taitoensis** (Simizu) Liu et Chao, comb. nov. Fig. 15.

Lasianthus taitoensis Simizu in Trans. Nat. Hist. Soc. Formos. **34**:239, 1944; Masam. List Vasc. Pl. Taiwan 118, 1954.

A shrub, about 1 m. tall. Branches and branchlets pubescent. Leaves petiolate, coriaceous, elongate-oblong or oblanceolate, 9–12 cm. long, 2.5–3 m, broad, apex acute or acuminate, base acute, upper surface glabrous, lower surface pubescent, veins 6–8-paired, veinlets subparallel; petioles pubescent, 3–5 mm. long; stipules acute, triangular 2.5–3.5 mm. long, pubescent. Cymes sessile, ebracteae. Flowers sessile, ebracteate, calyx campanulate or tube-like, 2.5–3 mm. long, apex truncate or shallowly dentate. Seeds 4.
Chinese Name: 臺東雞屎樹 Taitung Chi Shih Shu (New Chinese name)
Japanese Name: Taito-ruriminoki
Habitat: Only found in the broad-leaved forests at low altitudes on Botel Tobago and Taitung.
Specimens examined:

Taitung Hsien: Chu-suei-po, *H. Simizu* 3758; Lanyu (Botel Tobago), *T. Suzuki et Fukuyama* May 12, 1934 (Type); *T. I. Chuang et C. C. Hsu* 2334.
Distribution: Endemic.
Note: H. Simizu described the present variety as a new species in Trans. Nat. His. Soc. Formos. **34**:237, 1944. In his note he says this species is similar to *L. nigrocarpus* (now named *L. obliquinervis*), but differs by smaller size and truncate calyx. We have carefully studied and compared these two species knowing that



Fig. 15. *Lasianthus obliquinervis* Merr. var. *taitoensis* (Simizu) comb. nov.

A. fruiting branch, B. leaf, under surfsce, C. immature fruit.

the truncate calyx is also seen on some specimens of *L. obliquinervis*. We cannot, therefore, consider the truncate calyx as a distinguishing characteristic for separating these two species. The only difference from the latter species is the smaller oblanceolate leaves. So we treat Simizu's new species as a variety of *L. obliquinervis* Merr.

16. Lasianthus plagiophyllus Hance, in Journ. Bot. New ser. **4**:196, 1875; Kanehira, Formos. Trees ed. 2:570, 1936; Masam. List Vasc. Pl. Taiwan 118, 1964; Liu, Ill. Nat. Intr. Lign. Pl. Taiwan 2:1120, f. 939, 1962. Li, Wood. Fl. Taiwan 857, pro parte. Fig. 16.

Lasianthus wallichii (non Wight) Henry, List Pl. Formos. 51, 1896; Matsum. in Bot. Mag. Tokyo **15**:16, 1901; Matsum. et Hay., Enum. Pl. Formos. 197, 1906; Hay., Icon. Pl. Formos. 2:99, 1912.

Lasianthus bordenii Elm., Leafl. Philip. Bot. 1:11, 1906; Merr., Enum. Philip. Pl. 3:565, 1923; Liu, Sasaki and Keng, in Quart. Journ. Taiwan Mus. 8:322, 1955.

Mephitidia plagiophylla (Hance) Nakai, Trees & Shrubs Jap. ed. 2:529, 1927; Masam., Short Fl. Formos. 203, 1936.

A shrub, 1–2 m. tall. Branches and branchlets densely hirsute. Leaves sessile or shortly petiolate, subcoriaceous or chartaceous, oblong or elliptic, 6–10 cm. long, 2.5–4 cm. broad, apex acute or acuminate, base oblique, upper surface glabrous, lower surface tomentose or hirsute, veins 6–8 paired veinlets subparallel; stipules triangular, densely hirsute, 3–4 mm. long. Cymes sessile, 3–4 flowered, covered by several persistent bracts; bracts lanceolate or linear, with densely long hairs, up to 10–15 mm. long, flowers sessile or shortly pedicelled, 13–15 mm. long, calyx campanulate, long hirsute, 3 mm. long, 5 dentate; corolla white, 10–12 mm. long, outside glabrous or nearly so, inside villose, 5–lobed. Fruits globular, 10 mm. in diameter, pubescent, blue at maturity. Seeds 5.

Chinese Name: 圓葉雞屎樹 Yuan Yeh Chi Shih Shu

Japanese Name: Maruba-ruriminoki

Specimens examined:

Taipei Hsien: Keelung, *Y. Yamamoto* May 1931, *T. Suzuki* 4231, *Kao* 4314; *Shimada* 24304 (TAIF); Wu-lai, *S. Sasaki*, April 4, 19181; 24305 (TAIF); Habun, *T. Suzuki* 16844; Tung-hou-chi, *T. Suzuki* 14806; Li-mou-yen, *Hayata* 24306 (TAIF); Kan-kou, *S. Sasaki* Oct. 28, 1932, Nov. 23, 1942, *T. I. Lin* Sept. 24, 1953; Mu-tzu Shan, *H. Simizu* 474; Hsin-tien, *H. Simizu* 1452, *Tanaka* 11123, *Chao* 633, 634, 635, 924, *S. Suzuki* Nov. 17. 1929; Tsan-chu Shan, *S. Suzuki* 4412, 5148, *G. Masamune* 1478. Hsinchu Hsien: Ta-tung-ho, *Mori* 24308 (TAIF). Nantou Hsien: Pu-li, *Y. Kudo, T. Ito* 24310 (TAIF); Lien-hwa-chi, *Y. Yamamoto et Mori* Nov. 2, 1932, *Y. Hashioka* Nov. 2, *Chao* 882; Sun Moon Lake, *Y. Kudo et S. Sasaki* 15255, 15355, *S. Sasaki* Sept. 12, 1929, Aug. 1929. Pei-keng-shan, *T. Ito* 24311 (TAIF). Kaohsiung Hsien: San-pin, *Chao* 685. Pingtung Hsien: Nan-jen Sha, *J. L. Wang* Nov. 2, 1962, *Furukawa* 24313 (TAIF); Kenting, *Matuda* 1707, Rohutu Shan, *T. Suzuki* 6061. A-hoy *Matsuda* 24312

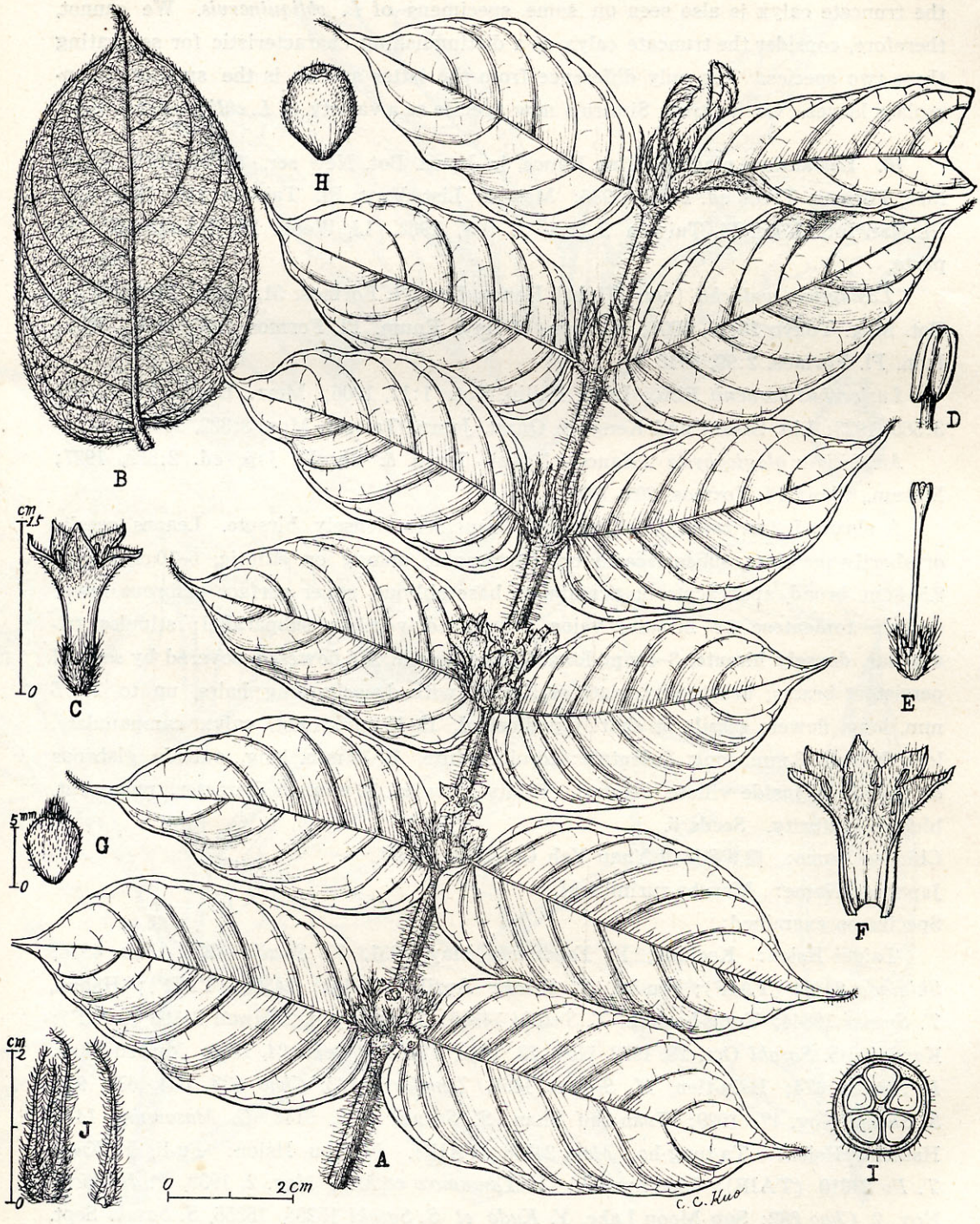


Fig. 16. *Lasianthus plagiophyllus* Hance

A. flowering branch. B. leaf, under surface. C. flower. D. anther. E. flower, corolla removed. F. corolla. G. immature fruit. H. mature fruit. I. cross section of fruit. J. bracts.

(TAIF). Taitung Hsien: Chu-suei-po, *H. Simizu* 3641, *S. Sasaki* May 15, 1924; Ching--suei-yin, *H. Simizu* 3659; Taitung, *S. Sasaki* May 1924; Hsin-kang, *T. Suzuki* 19461. Ilan Hsien: Yuan Shan, *H. Simizu* 1516; Mt. Oöbi, *G. Masamune* April 23, 1938, Lanyu (Botel Tobago), *T. I. Chuang et C. C. Hsu* 2366, *H. Keng* 578, *T. Suzuki et Fukuyama* 690. Lü-tao (Green Island): *Kobayashi* 24314 (TAIF). Kuei-shan Tao, G. *Masamune et S. Suzuki* July 3, 1932.

Distribution: Taiwan, Southern parts of China Mainland, Ryukyu and the Philippines.

Note: This species is characterized by the oblique leaves and the conspicuous linear bracts at the base of flowers.

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