

CONTRIBUTIONS OF THE DICOTYLEDONOUS PLANTS OF
TAIWAN (X)

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[Abstract]

Described as new materials to the dicotyledonous plants of Taiwan are 1 genus and 3 species of new record, 6 species of new naturalization, Besdies, a new distribution area of *Pieris taiwanensis* Hay. have been found. These taxa are listed as follows:

(A) New records:

- (a) *Borreria repens* DC. (Rubiaceae)
- (b) *Hedyotis corymbosa* var. *tereticaulis* Ko (Rubiaceae)
- (c) *Legazpia polygonoides* (Benth.) Yamazaki (Scrophulariaceae)

(B) New naturalizations:

- (a) *Malachra capitata* (L.) L. (Malvaceae)
- (b) *Rickardia brasiliensis* Gomez (Rubiaceae)
- (c) *Spergula arvensis* L. (Caryophyllaceae)
- (d) *Solanum sisymbirifolium* Lam. (Solanaceae)
- (e) *Ipomoea trifida* (G.B.K.) G. Don (Convolvulaceae)
- (f) *Lindernia dubia* (L.) Pennell (Scrophulariaceae)

(C) New distributions:

- (a) *Pieris taiwanensis* Hay. (Ericaceae)

The genera of *Malachra*, *Spergula* and *Legazpia* are firstly reported from Taiwan. Bulletin Exp. Forest NCHU No. 11~30 (March, 1987)

台灣雙子葉植物新見(十)

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[摘要]

本文乃繼「台灣雙子葉植物新見(九)」之後，作者研究本省地區雙子葉植物分類

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成果報告之一，記錄有一新記錄屬、三新記錄種、六新馴化種及一新分佈種。文中乃以傳統分類方法將此等予分類鑑訂，並分別加以詳細記述與引證標本。其學名及中名如下：

(一)新記錄屬：

1. 三翅蕁屬 *Legazpia* Blanco

(二)新記錄種：

1. 二萼鴨舌癩 *Borreria repens* DC. (茜草科)
2. 圓莖耳草 *Hedyotis corymbosa* var. *tereticaulis* Ko (茜草科)
3. 三翅蕁 *Legazpia polygonoides* (Benth.) Yamazaki (玄參科)

(三)新馴化種：

1. 頭花葵 *Malachra capitata* (L.) L. (錦葵科)
2. 巴西擬鴨舌癩 *Richardia brasiliensis* Gomez (茜草科)
3. 大爪草 *Spergula arvensis* L. (石竹科)
4. 擬刺茄 *Solanum sisymbirifolium* Lam. (茄科)
5. 大星牽牛 *Ipomoea trifida* (H.B.K.) G. Don (旋花科)
6. 美洲母草 *Lindernia dubia* (L.) Pennell (玄參科)

(四)新分佈種：

1. 台灣馬醉木 *Pieris taiwanensis* Hay. (杜鵑科)
- 中央大學實驗林 研究報告 第8號 11~30 (民國76年3月)

INTRODUCTION

In this paper, the writer proposes several new materials to the dicotyledonous plants of Taiwan. Described as new materials are 1 genus and 3 species of new record, 6 species of new naturalization. Besides, the species of *Pieris taiwanensis* Hay. collected from Tou-ko mountain by the writer is now described as new to its distribution area.

These taxa are arranged according to J. Hutchinson's taxonomic system (1973), figures (except *Pieris taiwanensis* Hay.) as well as detailed descriptions for each taxa are given. Most of the specimens cited in this paper have been collected by the writer himself and Professor F. Y. Lu during the past several years. They are now deposited in Herbarium of Department of Forestry, National Chung-Hsing University (TCF).

Besides, some specimens concerned with this study are deposited in Herbarium of Department of Botany, National Taiwan University (TAI), and Herbarium of Taiwan Forestry Research Institute (TFRI). I hope to express my sincere thanks to the curators and superintendents of those herbaria for their gracious help. I wish to express my deepest appreciate to Professor J. Y. Hsiao, Department of Botany, National Chung-Hsing University for his help on getting references. I am also indebted to Miss L. F. Lu, for her great line drawings.

I hope also to express my special indebtedness to Professor Y. C. Liu of the Chung-Hsing University, Professor F. Y. Lu and Associate Professor C. C. Liao of the National Chiayi Institute of Agriculture for their generous help and encouragement.

Malvaceae

Malachra L., Syst. Nat. ed. 12, 2:458, 1767

Herbs or shrubs, often with hispid indumentum. Leaves petiolate, blades palmately lobed or sometimes unlobed, crenate-serrate; stipules thread-like. Flowers in axillary heads which are subtended by 3 large leafy bracts, each bract with 2 filiform outgrowths at the base. Epicalyx wanting, calyx campanulate, usually increasing after flowering, 5-lobed, the lobes 3-nerved; petals adnate to the base of the staminal tube, variously coloured; staminal tube included by the corolla, anthers on the outside of the tube on short filaments; style-branches twice as many as the carpels; stigma capitate, ovary 5-celled, each with 1 ovule. Fruit a schizocarp, subglobose, mericarps 5, glabrous or pubescent, each with one seed, seeds of somewhat similar form to the carpel, but slightly smaller.

About 10 species, native of tropical and subtropical America; one in Taiwan.

Malachra capitata (L.) L., Syst. Nat. ed 12, 2:458, 1767.

Pl. 1.

Sida capitata L., Sp. Pl. 685, 1753.

Annual erect shrubby herbs, up to about 2 m high, stems fibrous, covered with subaculeate hairs. Leaves broadly ovate to orbicular, the apex obtuse, the base obtuse or subcordate, 5-nerved, unlobed or shallowly 5-lobed, up to 13 cm long and broad, sparsely stellate-hairy above, stellate-hairy beneath, margins crenate-serrate; petioles up to 7 cm long, pilose and stellate-hairy; stipules filiform, 1-1.5 cm long, entire or 2-partite. Flowers axillary or terminal, in head-like inflorescences surrounded by 3 broad involucral bracts, bracts broadly ovate, the apex acute, with recurved tip, the base cordate and with 2 filiform appendages, margin entire or 1-2-teethed, green with a pale (white) base, about 1.2 cm long, 1.4 cm broad. Heads on 1-3 cm long peduncles, 4-7-flowered; calyx 8 mm long, 5-lobed, the lobes narrowly triangular, about 4 mm long, long-acuminate, pale, 3-nerved, the nerves stout, green; Corolla yellow, about 1.3 cm long, 5-partite, the lobes spathulate, spreading, about 1.1 cm long; Staminal tube about 1.2 cm long, bearing anthers on the outside; Ovary 5-celled, mericarp 1-ovuled, style-branches 10, stigma capitate. Fruits breaking into 5 dehiscent 1-seeded mericarps, mericarps glabrous, 3-sided-obovate, about 3.5 mm long;

Seeds of somewhat similar form to the mericarps, blackish brown, about 3 mm long.

Native in tropical America, Taiwan on the vicinity of Kaohsiung.

Specimens examined:

Kaohsiung city: Lin Hai industrial District, C. H. Ou 7732, 8353, 9611, 9828. (TCF)

Note: The present plant is occurring only in Lin Hai District of Kaohsiung city, and very likely that this has been a comparatively recent introduction. It is characterized by its capitate inflorescences and peltate involucreal bracts.

Ericaceae

Pieris taiwanensis Hay. in Journ. Coll. Sci. Univ. Tokyo 30(1): 169, 1911.

A small evergreen shrub, glabrous. Leaves crowded at tip of branches, coriaceous, lanceolate-oblong, 5-8 cm long, 2-3 cm broad, entire to crenate-serrate along the upper margins; petioles 1-1.5 cm long, glabrous. Flowers in terminal racemes, 7-10 cm long, the racemes often branched below, pedicels 2-5 mm long; calyx thickly coriaceous, 5-lobed nearly to the base, the lobes triangular-ovate, glabrous; corolla white, urceolate, 7-8 mm long, more or less constricted near the mouth; stamens 10, anthers 2-spurred; styles slightly exserted. Fruit a globose, capsule about 7 mm thick, with persistent calyx.

Endemic, usually on high mountain in open places at an altitude of about 2000-3300 m, sometimes of about 600-800 m.

Specimens examined:

Taichung city: Tou-Ker Shan, C. H. Ou 10070 (TCF)

Note: *Pieris taiwanensis* Hay. is one of the high mountain plants of Taiwan, usually at high altitudes in open grass lands, and also along sulfur hot springs at 600-800 m in the northern parts. Now we find out it also growing in Toukershan, of Taichung city about 600 - 800 m. It is the lowest distribution limit of the present plant in central Taiwan.

Rubiaceae

Borreria repens DC. Prodr. 4:542, 1830

P1.2.

Borreria laevia sensu auct. Taiwan *non* Grieseb.

Erect or ascending herbs, about 0.5-40 cm high; stems quadrangular and 4-winged, villose. Leaves opposite, thickly membranaceous, elliptic or elliptic-oblong, the apex obtuse or acute, the base broadly cuneate, glabrous on both surfaces, or sparsely hairy along the midrib beneath; petioles short, about 1.5 mm long; stipules short, sparsely hairy, adnate to petioles, forming sheath divided into several linear lobes. Flowers small, sessile, in axillary cluster, within stipule-sheath, clusters many-flowered; bracteoles

filiform, white and transparent, longer than the calyx, calyx lobes 2, linear-lanceolate, glabrous, inserted on two narrow sides of the compressed ovary; corolla white, campanulate-urceolate, 0.5 - 0.8 mm long, deeply divided into 4 lobes, the lobes erect with recurved apex; stamens inserted slightly above the base of the corolla; filaments and anthers minute, enclosed; ovary 2-celled, ovule one in each cell. Fruits elliptic, more or less compressed, about 0.8 - 1.0 mm long, sparsely covered with short hairs, 2 valves when opening and carrying the split septum; seeds oblong, obtuse on both ends, planx-convex, with a narrow groove, brown-yellow, glabrous.

Tropical Asia. Taiwan, in fields at low altitudes of southern parts of the island.

Specimens examined:

Kaohsiung Hsien: Shan-ping M. T. Kao 7453; T. C. Huang 4872 (TAI)

Pingtung Hsien: Shan-ti-man, C. H. Ou 5015 (TCF)

Note: This species is similar to *Borreria ocymoides* (Burm. f.) DC. of tropical Asia but differs from it in the 2-lobed calyx and short corolla, of only about 1 mm long.

Hedyotis corymbosa* var. *tereticaulis Ko in *Flora Hainanica* 3:580, 1974. P1.3

Erect or ascending herb, often branched from base, farinose-hispidulous all over; stems terete. Leaves sessile, linear-lanceolate, about 4 cm long, 1-3 mm broad, acute at both ends, the margins revolute; stipules membranaceous, connate into a bristly sheath and adnate to base of petioles, about 2mm long. Flowers usually 3 in axillary and terminal corymboses or corymbose-cymes; peduncles 6-12 mm long, bracts subulate, about 1 mm long; pedicels 4-8 mm long; calyx-tube glabrous, about 1 mm across, usually 4-sometimes 5-lobed, the lobes narrowly triangular, 0.8 - 1 mm long, minutely ciliate along the margins; corolla white or slightly pink, about 1.8 mm long, glabrous on both sides, the tubes about 1mm long, usually 4-sometimes 5-lobed, the lobes narrowly angular about 0.8 mm long; stamens 4, inserted in the throat of corolla-tube, filaments very short, anthers included; styles about 1mm long, glabrous, stigma 2-lobed. Capsules membranaceous, crowned by calyx-limb, about 2 mm across; seeds about 100 per cell, angular.

Native of southern and south-eastern parts of China. Taiwan, found in central part. Very common, usually in rice-fields and bamboo-fields.

Specimens examined:

Yuan-lin Hsien: Ku-Keng, C. H. Ou 9992; Tou-nan C. H. Ou 9886; Tou-nan C. H. Ou 9886; Tou-liao, C. H. Ou 9997A. Ming-Hsung C. H. Ou 10069 (all in TCF).

Richardia brasiliensis Gomez, Mem. Sober Ipecac. 31, 1801.

P1.4.

Decumbent, much branched herbs, stem terete, patently white-hairy.

Leaves obovate to oblanceolate or ovate-elliptic, about 2.5 cm long, 1 cm broad, shortly hairy on both surfaces; petioles up to 1 cm long, hairy; stipules adnate to the petioles into a rather long sheath divided into 4 or 5 subulatelobes. Flowers conifered at apex of stems into a capituliform inflorescences, with an involucre of one pair of leaves, involucral leaves equal; calyx-tube turbinate-globose, densely pubescent, about 1.8 mm long, limb separated from the ovary by a constriction; the lobes narrow-triangular, rather patent, about 1 mm long, long-ciliate; corolla white or slightly pink, about 2.5 - 3 mm long, tubes within about the base with a ring of hairs, the lobes ovate or lanceolate, acute, sparsely pubescent outside; filaments glabrous; styles glabrous, about 3 mm long, stigma capitate. Fruits obconical to ovoid, hispidulous, about 2.5 mm long; cocci keeled inside.

Native to S. America. Taiwan, in open grass-lands or roadside.

Specimens examined:

Taichung Hsien: Sha-lu, C. H. Ou 9918 (TCF)

Note: Near to *Richardia scabra* L. in general appearance but can easily be distinguished it by the rather patent calyx-lobes, keeled cocci, and fruits with longer pubescent.

Caryophyllaceae

Spergular L., Sp. Pl. 440, 1753

Annual branched herbs. Leaves linear-filiform, bearing a bundle of leaves in axil, therefore seemingly verticillate; stipules scarious-margined. Flowers in lax, terminal cymes, 5-merous; pedicels recurved after flowering; sepals free, obtuse, with membranaceous margin; petals entire, white; stamens 5 or 10; styles 5, short. Capsules 5-valved, the valves opposite the sepales, entire; seeds compressed, acute-margined or winged.

About 3 species, native of Europe, one species in Taiwan.

Spergular arvensis L., Sp. Pl. 440, 1753

P1.5

Annual slender herbs, glabrous or sparsely glandular pubescent, fetid, branching at or near the base, erect or ascending. Leaves narrowly linear or subulate, 2-5 cm long, clustered at the nodes in two opposite sets of 6-9 together, appearing verticillate; stipules small, connate, triangular-ovate. Flower white, 4 - 6 mm broad, numerous in loose terminal cymes; pedicels slender, divaricate, 6 - 25 mm long; sepals ovate, 2.5 - 3.5 mm long, sparsely glandular-pubescent; petals ovate-obovate, as long as calyx or slightly longer; stamens 10 or 5 in flowers on the same plant. Capsules depressed ovoid, slightly longer than calyx; seeds lenticular, thick, very narrowly winged all around, papillose.

Widely distributed in Europe. Taiwan, introduced and escaped.

Specimens examined:

Nantou Hsien: Wusha, C. H. Ou et al 8146 (TCF)

Note: This species usually grow in forage-land in Europe. It is characterized by the linear leaves which clustered at the nodes in two opposite sets of 6 - 9 together.

Solanaceae

Solanum *sisymbriifolium* Lam. Illustr. 2:25, 1793

P1.6

Annual branched herbs, 5-150 cm high, densely stellate-pubescent with viscid hairs and armed with yellow prickles all over, prickle-base slightly glandular-hairy. Leaves deeply pinnatifid into oblong toothed or sinuate lobes, about 15 cm long, 6 cm broad. Inflorescences lateral and terminal, 10 or less-flowered; pedicels 1.2 - 1.8 cm long; calyx deeply 5-partite, outside densely glandular hairy, mostly aculeate, about 1 cm long, the lobes ovate-triangular, acute or obtuse; corolla slightly irregular, light blue or white, 2 - 2.5 cm long, the lobes coherent by membranes, ovate-triangular, acute, outside with thinly hairy central area, inside glabrous; stamens and styles nearly erect, anthers all equal, yellow. Berry globose-obovoid, included in the accrescent calyx which has a prickly tube and thinnish lobes, orange-red when ripe, up to 2.5 cm across.

Native in tropical America. Taiwan, found on seashore of northern parts, naturalized.

Specimens examined:

Taipei Hsien: Bali, F. Y. Lu et C.C. Liao 9018 (TCF)

Note: This species is characterized by the deeply pinnatifid leaves, and stellate, viscid, glandular indumentum.

Convolvulaceae

Ipomoea trifida (H. B. K.) G. Don, Gen. Syst. 4:280, 1839; Oostst., Fl. Males.

1 (4): 469, 1953.

P1.7

Convolvulus trifidus H.B.K., Nov. Gen. Sp. 3:107. 1819

Ipomoea commutate sensu Oostst. in Blumea 3:513. 1940 non R. & Sch.

A twining herb, stem hairy or glabrous. Leaves broadly ovate or orbicular, 4-8 cm long, 5-9 cm broad, entire to 3-lobed, cordate at the base; petioles about 18 cm long, glabrous. Cymes 1-several-flowered, flowers aggregate; peduncles 2-13 cm long, pedicels about 1 cm long, sepals subequal, 8 mm long, oblong to elliptic, the apex acute mucro rather long, hairy, the margins fimbriate; corolla 2-3 cm long, funnel-shaped, glabrous, red; stamens and style included, the filaments hairy at the base; ovary hairy. Capsules subglobose, 6-7 mm across, pilose; seeds 4 mm long, thinly hairy on ventral rib.

Native in tropical America. Taiwan introduced, escaped and naturalized.

Specimens examined:

Chang-hwa Hsien: Shi-jou, C. H. Ou 9983 (TCF)

Nan-tou Hsien: Ming-chien C. H. Ou 10002 (TCF)

Yun-lin Hsien: Tou-liu C. H. Ou 9996 (TCF)

Pintung Hsien: Fong-kang F. Y. Lu et al. 9822 (TCF)

Note: Much resembling *Ipomoea triloba* (H.B.K.) G. Non, mainly differing in the short-pilose stems, petioles, leaf-blades, peduncles and pediceles, the thinner peduncles, the longer branches of the cymose, inflorescences with less aggregate flowers, the paler in dry specimen straw-coloured calyces with more densely pilose sepals, the margin of which bear less stiff hairs. Moreover the sepals often have a longer, needle-shaped mucro, whilst the outer ones are often distinctly shorter than the inner. Corolla mostly longer than in *I. triloba* to 3 cm long, red-purple with a darker center.

Scrophulariaceae

Legazpia Blanco, Fl. Filip. ed. 2, 338, 1845: Merrill, Rew. Identific.

Spec. Describ. Blanco's Fl. Filipin. 65, 1905

P1.8

Tuyamaea Yamazaki in Journ. Jap. Bot. 30:171, 1955

Herbs. Leaves opposite, pinnately veined, toothed. Flowers in elongate or short few-flowered umbels, sometimes solitary, the peduncles and pedicels bracted; calyx broadly 3-winged, wings membranaceous, semi-circular; corolla cylindric and slightly ampliate above; the limb bilabiate, the upper lip rounded, margins minutely hairy, the lower lip larger, 3-lobed; stamens 4, perfect, with a filiform appendage at base, the lower pair inserted on the throat, the anther-cells divaricate, often cohering in pairs; styles with entire conic stigma; ovary glabrous. Capsules elongately ovate, glabrous, enclosed in the calyx; seeds with large hollow.

Only 3 species, from Taiwan, Philippine Islands, Micronesia to Burma.

Note: *Legazpia* had been treated under the genus *Torenia* by some taxonomists. But in the general species of *Torenia* the calyx always consists of five lobes with five narrow wings growing along their midveins whereas in *Legazpia* it consists of three lobes, and three wings growing along the intermediate positions between two midveins. Moreover, *Legazpia* differs from *Torenia* in having glabrous ovaries, small corollas slightly exceeding the calyces, upper corolla lips being rounded and minutely hairy at the margins and seeds having five longitudinal slender shallows. By such remarkable differences, Yamazaki separate the genus *Legazpia* from *Torenia*.

Legazpia polygonoides (Benth.) Yamazaki in Journ. Jap. Bot. 30(12): 359
1955.

Torenia polygonoides Bentham in Scroph. Ind. 39, 1835.

Legazia triptera Blanco, Fl. Filip. ed. 2:338, 1845.

An annual slender herb, glabrous or sparsely pubescent on young parts; stems tetragonous, diffusely branched, creeping below. Leaves opposite, triangular-ovate, 2 - 2.5 cm long, 1.5 - 1.8 cm broad, the apex acute, the base truncate; the margins sparsely serrate, but near basal part entire, lateral veins 3-4 per side; petioles about 1 cm long. Flowers in 2-3-flowered umbel, sometimes solitary, axillary; peduncles about 8-16 mm long; pedicels about 1.5 cm long; bracts small, about 4 mm long, foliaceous, margin serrate; bracteoles linear-oblong, about 2 mm long, pubescent; calyx ovate-orbicular, about 1 cm long, prominently 3-winged, the wings semi-orbicular, about 5 mm broad, 3 wings growing along the intermediate position between two midveins, wing-veins prominently reticulate; corolla white, more or less longer than the calyx, about 8 mm long, bilabiate, the upper lips entire, rounded, margins ciliate, the lower lips 3-lobed, the lobes rounded; stamens 4, didynamous, the lower pairs inserted on the corolla throat; filaments with filiform appendage at base; the anthers cohering in pairs; ovary oblong, glabrous; style slender, about 2.5 mm long; stigma capitate; disc annular; seeds shortly rectangular-cylindric, having 6 row of longitudinal hollows.

Distribution in Philippines, Borneo, Micronesia, New Guinea, Malay, Burma, Indo-China and Hainan Island. Taiwan we collected firstly the specimens from Nan-Jen-Shan, Hengchung, in February 1972.

Specimens examined:

Pintung Hsien: Nan-Jen-Shan, Lu et Ou c11063 (TCF)

Philippines: Luzon, G. Edaro 23532; M. Ramos 23533 (TAIF)

Indonesia: Sumatra, H. S. Yates 153354 (TAI)

Note: The present plant is characterized by the three semi-orbicular wings in fruit.

Lindernia dubia (L.) Pennell in Acad. Nat. Sci. Philad. Monogr. 1, Scroph. 141, 1935 Pl. 9

Gratiola dubia L., Sp. Pl. 17, 1753

Ilysanthes dubia Barnhart, Bull. Torr. Club 26:376, 1899.

Annual herbs, glabrous, stems tetragonous, erect or ascending, about 10-30cm high. Leaves opposite, sessile, obovate-lanceolate, 1-3 cm long, 0.5-1.2 cm broad, the apex acute to obtuse, the base narrowed, 3-nerved, the primary veins slender, 1 or 2 pairs, inconspicuous above, raised beneath, the margins 3-crenate per side, the teeth acute. Flowers solitary, axillary, the pedicels slender, shorter than the leaves, about 0.5 - 1.2 cm long, calyx 5-parted, the lobes linear, ciliate along the margins, about 4 mm long,

corolla whitish pink, about 6 mm long, bilabiate, the upper lip smaller, 2-lobed, the lower lip larger, 3-lobed, glandular-hairy within; glands yellow; fertile stamens 2, included, anthers more or less cohering, cells divaricate; sterile stamens 2, clavate; ovary glabrous, ovate-oblong, about 1 mm long, style slender, persistent, about 3 mm long, base dilatate; the stigma 2-lamellate, papillate. Capsules ovate-oblong, about 4.5 mm long, as long as or slightly longer than the calyx; seeds numerous, tetra-cylindric, usually more or less curved, about 0.4 mm long, with several transverse ribs.

Native of northern America. Taiwan, introduced and naturalized, found on wet places and rice-fields, very common in Tiachung.

Specimens examined:

Taichung City: Taichung, C. H. Ou 3506, 10040, 9917, 9967 (TCF)

Taichung Hsien: Dali C. H. Ou 9869 (TCF)

Note: The present species is a new naturalization to Taiwan, very similar to *Lindernia procumbens* (Krock.) Philcox. but differs from it by the petiolate leaves, crenate margins, flowers with 2 stamens, and seeds with several transverse ribs.

Literatures

1. Adams, C.D. 1972. Flowering Plants of Jamaica 458-470.
2. Backer, C.A. & R.C.B. Brink 1963, 1965. Flora of Java 1:209, 421-428; 2: 351-353, 472.
3. Britton, N.L. & H.A. Brown, 1970. An Illustrated Flora of the Northern United States and Canada 3:167, f; 2:59, f.
4. Chang, C.E. 1978. Convolvulaceae in Flora of Taiwan 4:347-379.
5. Chao, J. M. 1978. Rubiaceae in Flora of Taiwan 4:247-281.
6. DeCanole, 1830. Prodroms, 4:542.
7. Fawcett, W. & A.B. Rendle, 1926. Flora of Jamaica 5:122-125.
8. Hayata, B. 1911. Materials of a Flora of Formosa 169.
9. Hsu, C.C. 1973. Taiwaniana 18(1): 65, pl. 2.
10. Hu, S.Y. 1955. Malvaceae in Flora of China 1-80.
11. Jacques, F. 1978. Flore Illustrée des Phanérogames de Guadeloupe et de Martinique 1503-1505.
12. Kanehira, R. 1956. Formosan Trees rev. ed. 535, f. 495.
13. Kia, T.T. & T.S. Kia, 1937. Plantae Sinicae cum Illustrationibus 851, pl. 1479.
14. Ko, W.C. 1974. in Flora of Hainanica 3:580.
15. Li, H.L. 1963. Woody Flora of Taiwan 685, f. 287.
16. Li, H.L. 1978. Ericaceae in Flora of Taiwan 4:21, pl. 901.
17. Li, H.L. 1978. Scrophulariaceae in Flora of Taiwan 4:55-571.
18. Linne, C. 1753. Species Plantarum 1:440.
19. Liu, T.S. 1962. Illustrations of Natives and Introduced Ligneous Plants

of Taiwan **2**:978, pl. 808.

20. Liu, T.S. & S.S. Ying, 1976. Caryophyllaceae in Flora of Taiwan **2**:320-355.
21. Liu, Y.C. 1981. Ligneous Plants of Taiwan rev. ed. 451.
22. Liu, Y.C. et C.H. Ou, 1978, Solanaceae in Flora of Taiwan **4**:537-548.
23. Nagada, T. 1972. Illustrated Japanese Alien Plants 65, pl. 133; 162, pl. 334-f.
24. Ou, C.H. et Y.C. Liu, 1975. Studies on the Solanaceae of Taiwan Quart. Journ. China. Fore. **8**(3):39-58.
25. Ou, C.H. 1976, Contribution to the Dicotyledoneous Plants of Taiwan (1) Quart. Journ. China. Fore. **9**(2):117-126.
26. Ou, C.H. & Y.C. Liu, 1981. Contributions to the Dicotyledonous Plants of Taiwan (6) Quart. Journ. Chin. Fore. **14**(2):21-31
27. Ou, C.H. 1982-85, Contributions to the Dicotyledoneous Plants of Taiwans (7-9) Bulletin Experment Forest of NCHU **4**:1-16; **5**:1-10; **6**:1-8.
28. Stoffer, A.L. 1984. Flora of the Netherlands Antilles **3**:219-220.

(75 年 11 月 30 日 收 稿)

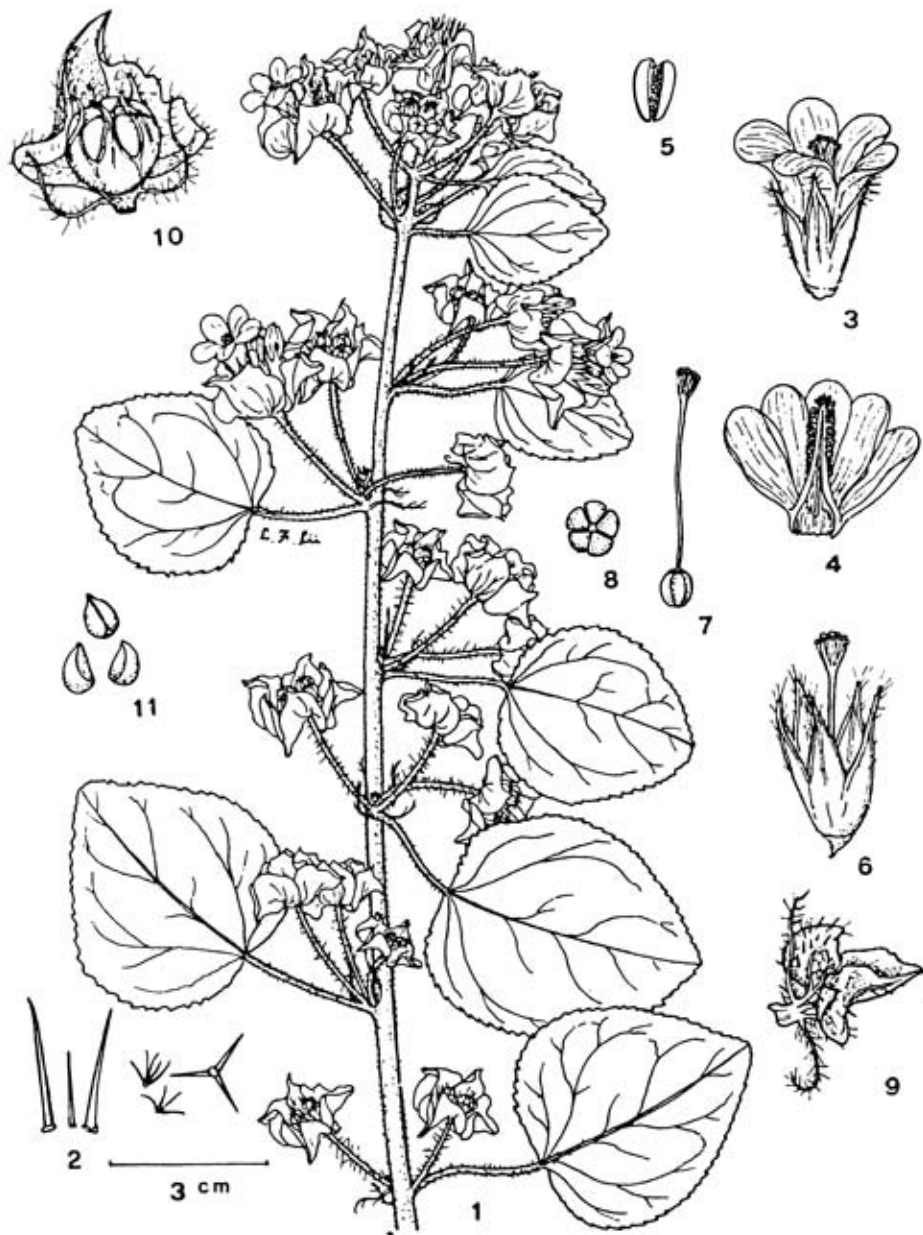


Fig. 1. *Malachra capitata* (L.) L. 1. habit; 2. trichomes; 3. flower; 4. corolla and staminal tube; 5. anther; 6. calyx and stigma; 7. pistil; 8. cross section of ovary; 9. involucrel bract and 2 filiform appendage; 10. fruit with bract; 11. seeds.

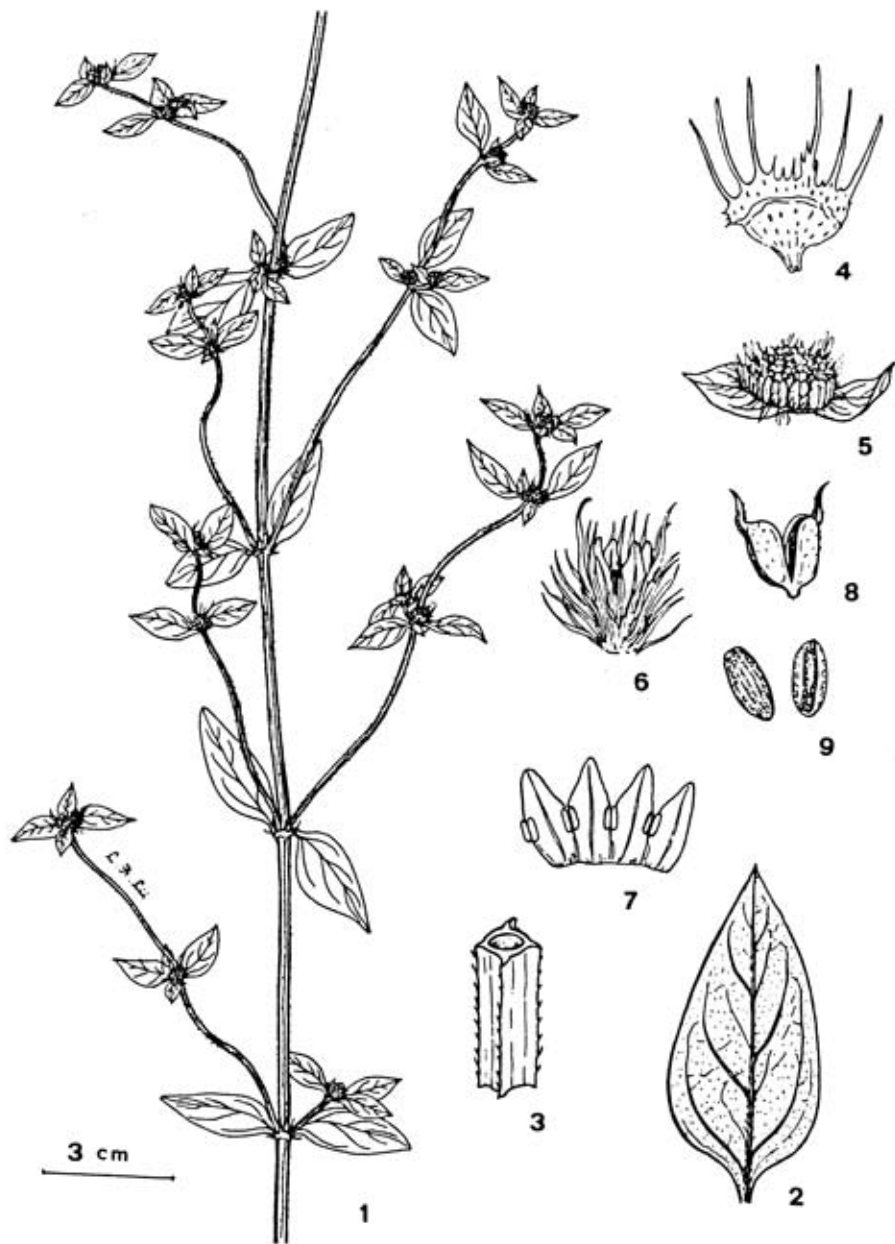


Fig. 2. *Borreria repens* DC. 1. habit; 2. leaf blade; 3. quadrangular stem; 4. stipule; 5. flowers in cluster; 6. flower and filiform bracteole; 7. corolla and stamens; 8. fruit; 9. seeds.

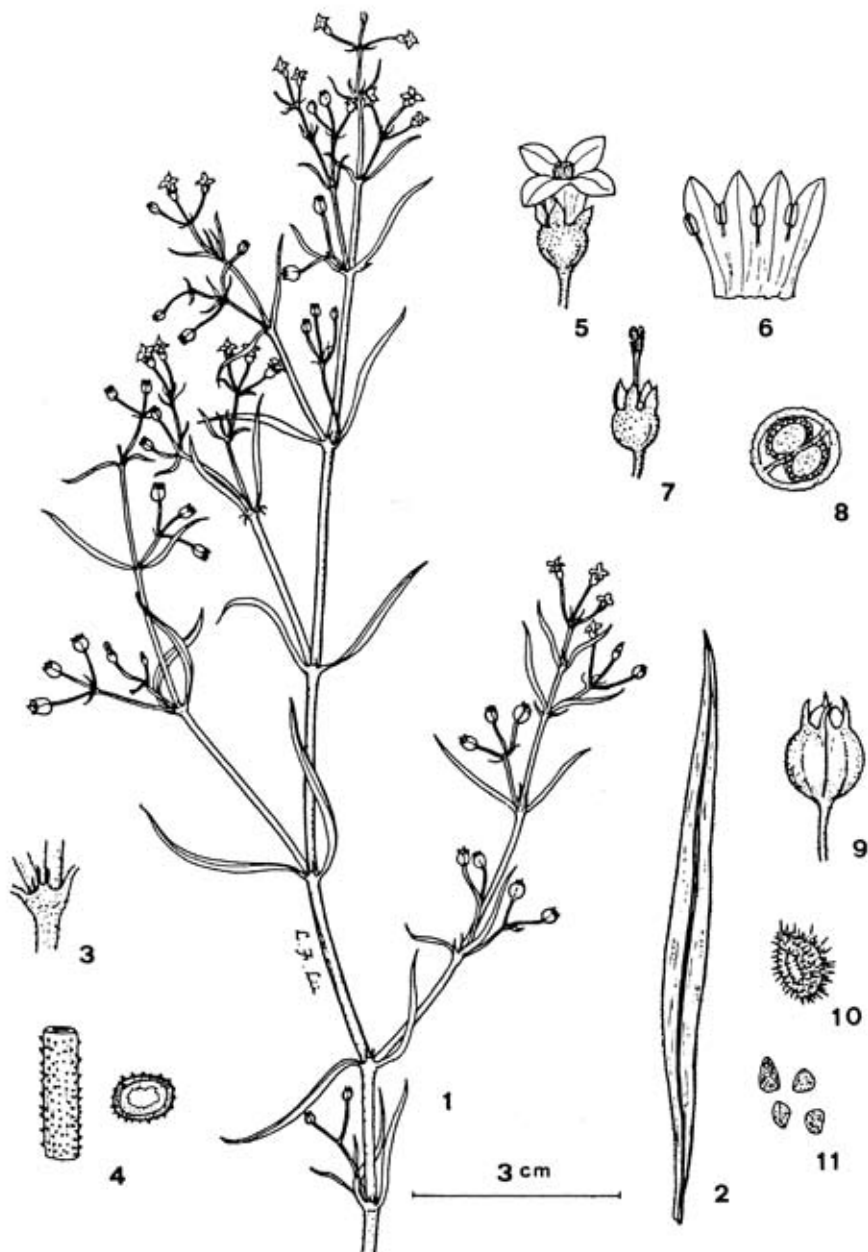


Fig. 3. *Hedyotis corymbosa* var. *tereticaulis* Ko l. habit; 2. leaf; 3. stipule; 4. teretestem and farinose-hispid; 5. flower; 6. corolla and stamens; 7. ovary and stigma; 8. cross section of ovary; 9. fruit; 10. placenta 11. seeds.



Fig. 4. *Richardia brasiliensis* Gomez 1. habit; 2. leaf; 3. trichomes; 4. stipule; 5. capituliform inflorescence; 6. flower; 7. corolla and stamens; 8. ovary and stigma; 9. fruit and hispid; 10. patent calyx; 11. cocci.

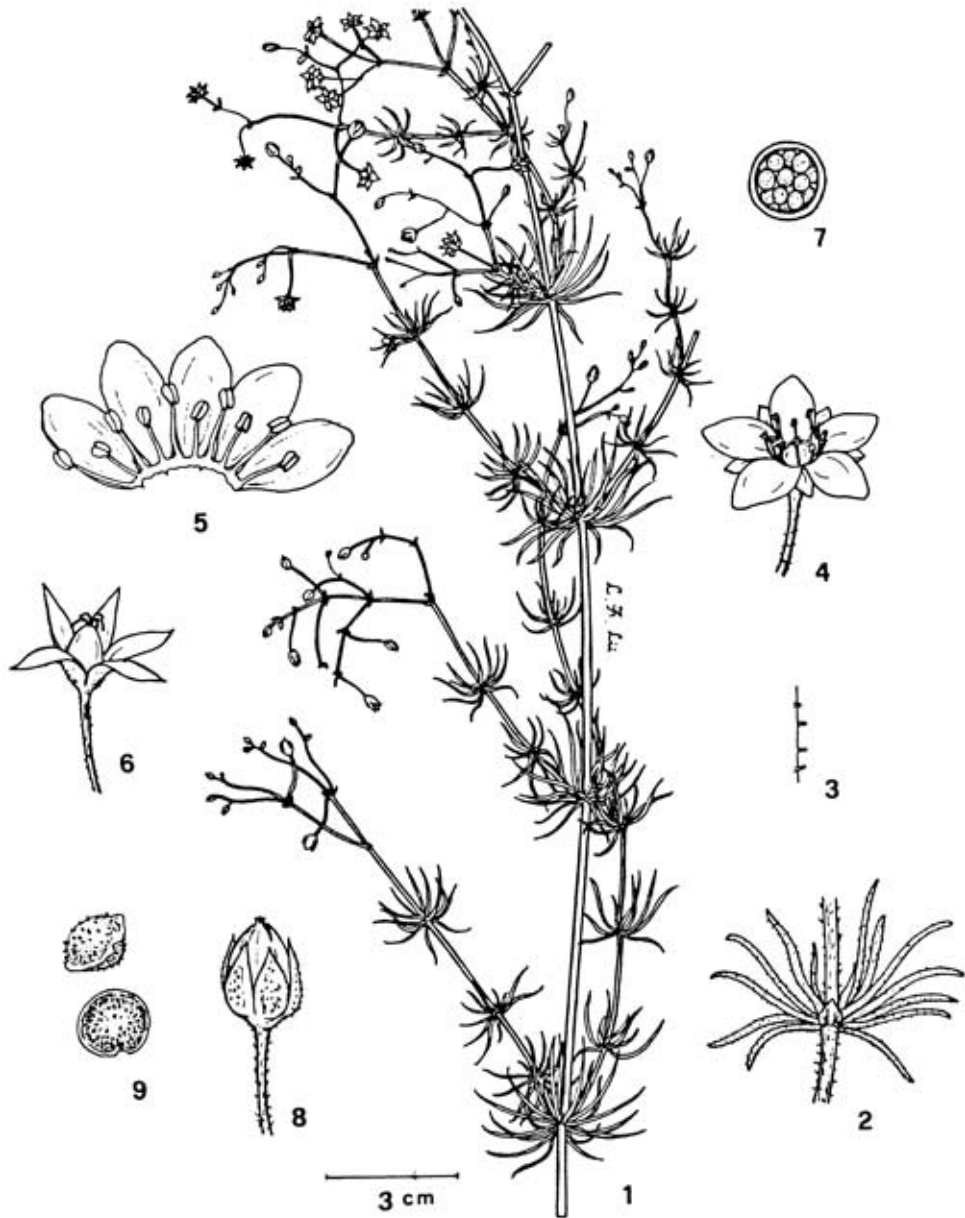


Fig. 5. *Spargula arvensis* L. 1. habit; 2. leaves in two opposite sets and stipule; 3. trichomes; 4. flower; 5. corolla and stamens; 6. calyx and ovary; 7. cross section of ovary; 8. fruit; 9. seeds.

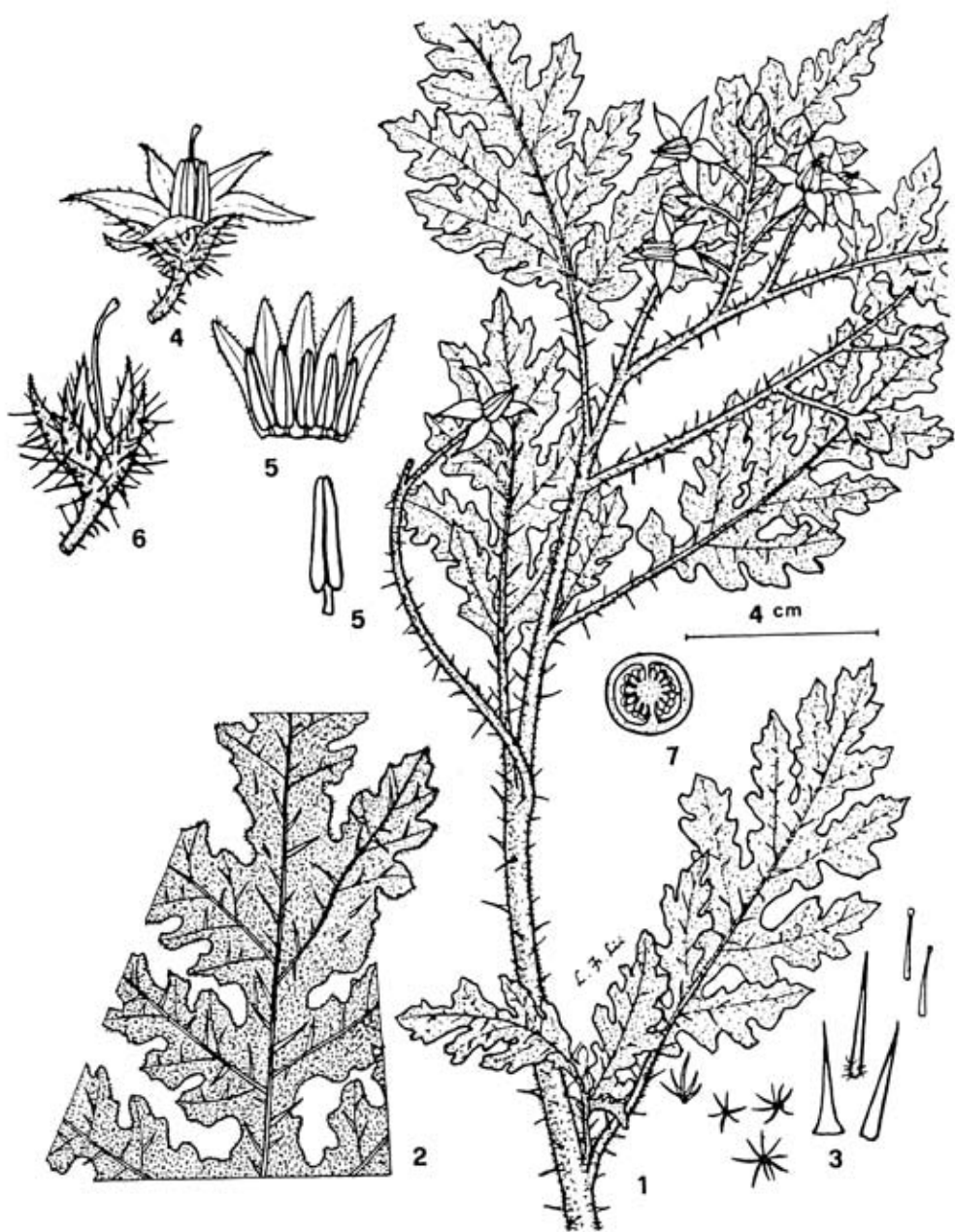


Fig. 6. *Solanum sisymbriifolium* Lam. 1. habit; 2. part leaf
 3. prickles and trichomes; 4. flower; 5. corolla
 and stamens; 6. calyx and ovary; 7. cross section
 of ovary.

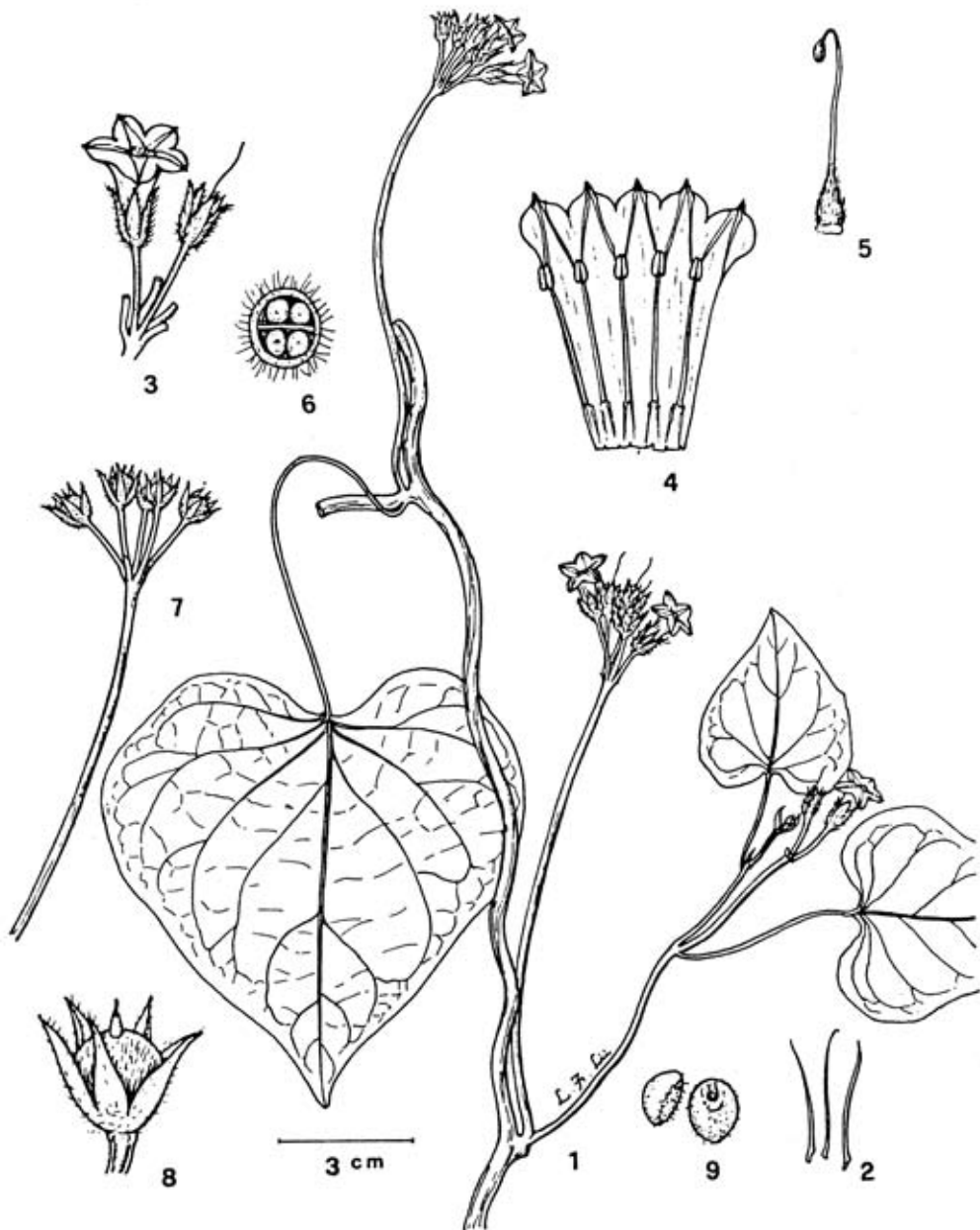


Fig. 7. *Ipomoea trifida* (H.B.K.) G. Don. 1. habit; 2. trichomes; 3. flower; 4. corolla and stamens; 5. ovary and stigma; 6. cross section of ovary; 7. inflorescence; 8. fruit; 9. seeds.

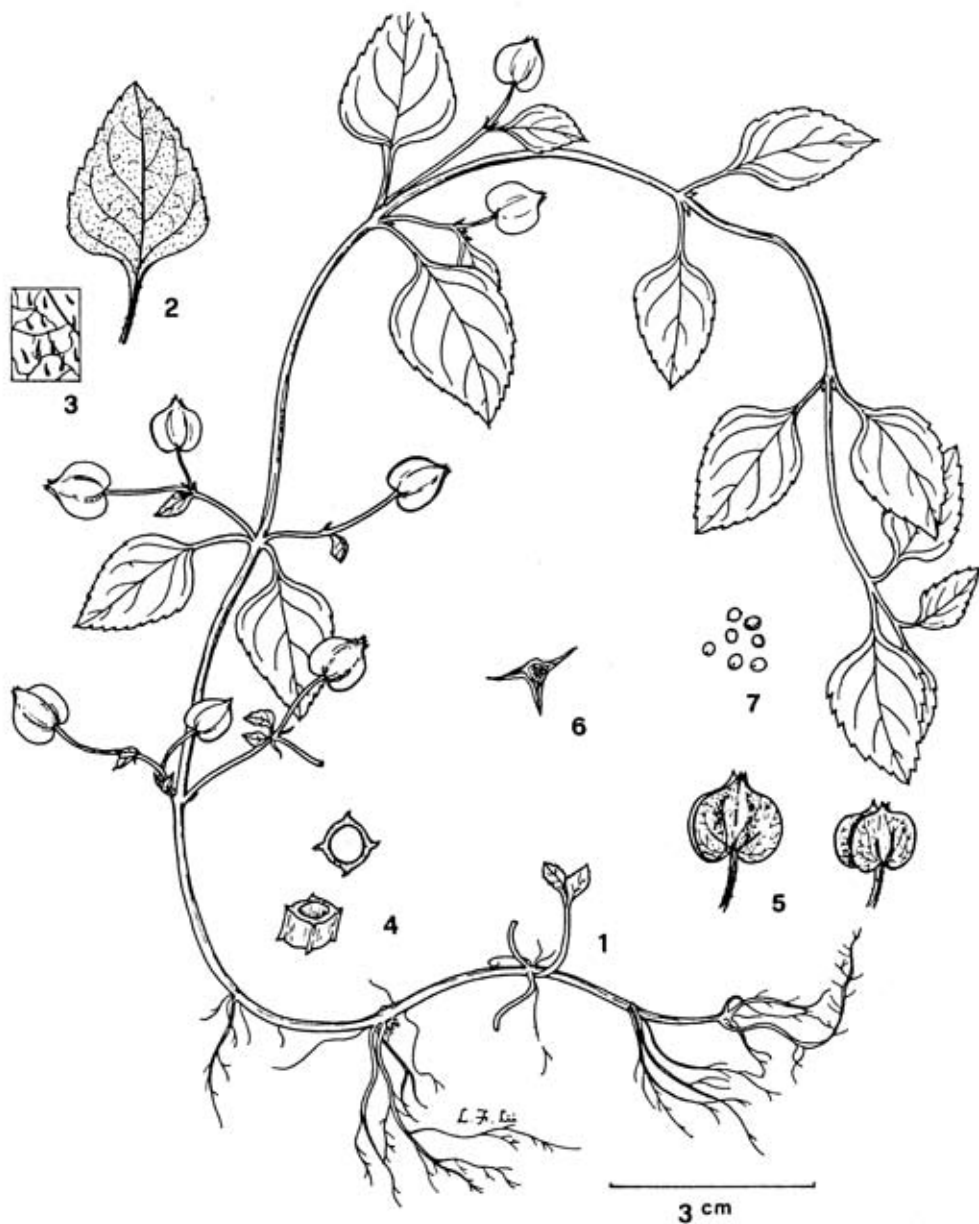


Fig. 8. *Legazpia polygonoides* (Benth.) Yamazaki 1. habit; 2. leaf; 3. indumentum; 4. tetragonous stem; 5. fruit; 6. cross section of fruit with 3 wings; 7. seeds.



Fig. 9. *Lindernia dubia* (L.) Pennell 1. habit; 2. part branch; 3. leaf-blade; 4. tetragonous stem; 5. flower; 6. corolla and stamens; 7. fruit; 8. seeds.