

sp., *Sphaeralcea cordobensis*, *Opuntia* sp., *Menodora integrifolia*, *Verbena hookeriana*, *Junellia juniperina*, *Solanum chacoense*, *S. elaeagnifolium*, *Baccharis ulicina*, and *Trichocline incana*. She cites also Burkart 29643 from the same area.

PARODIANTHUS ILICIFOLIUS (Mold.) Troncoso

Bibliography: Junell, Symb. Bot. Upsal. 1 (4): 18. 1934; Mold., Phytologia 1: 97. 1934; Mold., Feddes Repert. Spec. Nov. 39: 47 (1935) and 39: 132, 138--139, 152, & 153. 1936; Mold., Geogr. Distrib. Avicenn. 29. 1937; A. W. Hill, Ind. Kew. Suppl. 9: 54. 1938; Mold., Prelim. Alph. List Inv. Names 14. 1940; Mold., Lilloa 6: 434. 1941; Troncoso, Darwiniana 5: 31--40, fig. 1--3. 1941; Mold., Alph. List Inv. Names 43 & 44. 1942; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 43 & 97. 1942; Mold., Lilloa 8: 428 (1942) and 10: 345. 1944; Hill & Salisb., Ind. Kew. Suppl. 10: 233. 1947; H. N. & A. L. Mold., Pl. Life 2: 31 & 75. 1948; Mold., Alph. List Cit. 3: 694 & 903 (1949) and 4: 979 & 980. 1949; Mold., Known Geogr. Distrib. Verbenac., ed. 2, 105 & 192. 1949; E. J. Salisb., Ind. Kew. Suppl. 11: 178 & 273. 1950; Anon., U. S. Dept. Agr. Bot. Subj. Index 14358. 1958; R. C. Foster, Contrib. Gray Herb. 184: 170. 1958; Mold., Résumé 26, 250, 354, & 464. 1959; Mold., Phytologia 7: 246--247. 1960; Hocking, Excerpt. Bot. A.4: 223. 1962; Caro, Kurtziana 2: 219. 1965; Mold., Fifth Summ. 1: 199 & 423 (1971) and 2: 642 & 897. 1971; Anon., Biol. Abstr. 58 (7): B.A.S.I.C. E.21. 1974; Troncoso, Darwiniana 18: 387, 402, 403, 408, & 411, fig. 40 a--f. 1974.

Illustrations: Troncoso, Darwiniana 5: 33, 36, & 38, fig. 1--3 (1941) and 18: 402, fig. 40 a--f. 1974.

Troncoso (1974) cites *Hunziker* 13085 & 17313 from Córdoba, Argentina, and *Hunziker* & *Caro* 13590 from La Rioja. Caro (1965) cites *Hieronymus* & *Niederlein* 139, *Hunziker* & *Caro* 13590, and *Stuckert* 17013 from La Rioja. Troncoso (1974) also mentions *Hunziker* 13154 and *Stuckert* 1073 as source material for her illustration of the species, without reference to place of collection.

NOTES ON THE GENUS *SYMPHOREMA*

Harold N. Moldenke

In view of Munir's recent (1966) monograph of this genus, it would be presumptuous of me to continue with the thorough monograph of this genus which I had planned. However, it does seem worthwhile to place on record the bibliographic and other notes which my wife and I have assembled over the past fifty years. Herbarium acronyms herein employed are the same as have been used in all of my papers in the present (and other) journals since 1929 and are fully explained in my Fifth Summary, pages 795--801 (1971). This is the 51st genus thus far treated by me in this

series of papers.

SYMPHOREMA Roxb., Pl. Coast. Coromand. 2: 46, pl. 186. 1798.

Synonymy: *Analectis* Juss. in Jaume St.-Hil., Expos. Fam. Nat. 2: 362. 1805. *Symphorema* Heyne ex Wall., Numer. List [47], no. 1739, in syn. 1829. *Symphorensa* Spr. ex Llanos, Mem. Acad. Cienc. Madrid 3 (4): Nuev. App. 508. 1858. *Sczegleewia* Turcz., Bull. Soc. Nat. Mosc. 36 (2): 212--213. 1863 [not *Sczegleewia* Turcz., 1858]. *Szeglewia* C. Mull. in Walp., Ann. Bot. Syst. 7: 419. 1868. *Symphyromea* Wangerin, Justs Bot. Jahresber. 50 (1): 237, sphalm. 1930. *Sczegleëwia* Turcz. apud Airy Shaw in J. C. Willis, Dict. Flow. Pl., ed. 7, 1028. 1966. "*Litsaea* sec Blanco" apud Munir, Gard. Bull. Singapore 22: 161, in syn. 1967 [not *Litsaea* Juss., 1973, nor Pers., 1807]. *Analectpis* Mukherjee & Chanda, Trans. Bose Res. Inst. 41: 45, sphalm. 1978. *Symphoroma* Vill., in herb. *Symphorena* F.-Vill., in herb.

Bibliography: Roxb., Pl. Coast. Coromand. 2: 46, pl. 186. 1798; Jaume St.-Hil., Expos. Fam. Nat. 2: 362. 1805; Spreng. in L., Syst. Veg., ed. 16, 2: 208. 1825; Wall., Numer. List [47], nos. 1739 & 1740. 1829; Roxb., Fl. Ind., ed. 2, imp. 1, 2: 262 & 263. 1832; Meisn., Pl. Vasc. Gen. 1: 292. 1836; Blanco, Fl. Filip., ed. 1, 406--407. 1837; Endl., Gen. Pl. 638. 1838; Meisn., Pl. Vasc. Gen. 2: 198 & 200. 1840; Spach, Hist. Nat. Vég. Phan. 9: 227. 1840; Wight, Icon. Pl. Orient. 2: 5, pl. 362 & 363. 1840; Jack, Calcut. Journ. Nat. Hist. 4: 43. 1843; Blanco, Fl. Filip., ed. 2, 284. 1845; Walp., Repert. Bot. Syst. 4: 116 & 134. 1845; Voigt, Hort. Suburb. Calc. 464 & 470. 1845; Schau. in A. DC., Prodr. 11: 621. 1847; Wight, Icon. Pl. Ind. Orient. 4 (3): 13. 1849; Wight, Illustr. Indian Bot. 2: 216-217 & 257, pl. 173 bis. 1850; W. Griff., Notul. Pl. Asiat., imp. 1, 4: 175. 1854; Schnitzl., Icon. Fam. Nat. Reg. Veg. 2: 137 Verbenac. [3]. 1856; Buek, Gen. Spec. Syn. Candoll. 3: 464. 1858; Llanos, Mem. Acad. Cienc. Madrid 3 (4): Nuev. App. 508. 1858; Turcz., Bull. Soc. Imp. Nat. Mosc. 31 (1): 233--234. 1858; W. Ell., Fl. Andhra 63 & 97. 1859; Dalz. & Gibs., Bomb. Fl. 199. 1861; Thwaites & Hook. f., Enum. Pl. Zeyl., imp. 1, 242. 1861; Bocq., Adansonia, ser. 1, 2: 84 & 90. 1862; Turcz., Bull. Soc. Imp. Not. Mosc. 36 (2): 212--213. 1863; Hassk., Flora 48: 402. 1865; C. Müll. in Walp., Ann. Bot. Syst. 7: 419. 1868; Pfeiffer, Nom. Bot. 2 (2): 1326. 1874; Roxb., Fl. Ind., ed. 2, imp. 2, 326. 1874; Benth. in Benth. & Hook. f., Gen. Pl. 2 (2): 1132, 1136, 1159, & 1276. 1876; Kurz, Forest Fl. Brit. Burma 2: 253--256. 1877; Blanco, Fl. Filip., ed. 3, 2: 162. 1878; Fern.-Villar in Blanco, Fl. Filip., ed. 3, 4: 104, [105], 108, 367, & Nov. App. 160--162. 1880; Gamble, Man. Indian Timb., ed. 1, 281, 282, & 520. 1881; Vidal, Sin. Gen. Fam. Pl. Leñ. Filip. [Introd. Fl. For. Filip.] 1: 202 (1883) and 2 [Atlas] 36, pl. 75, fig. F. 1883; C. B. Clarke in Hook. f., Fl. Brit. India 4: 561 & 599--602. 1885; Trimen, Syst. Cat. Flow. Pl. Ceyl. [Journ. Ceyl. Br. Roy. Asiat. Soc. 9:] 69. 1885; Vidal, Phan. Cuming. Philip. 135. 1885; Vidal, Rev. Fl. Vasc. Filip. 212. 1886; Watt, Dict. Econ. Prod. India 5 (3): 396. 1889; Baill., Hist. Pl. 11: 89. 1891; Watt, Dict. Econ. Prod. India 6

(3): 396. 1891; Nairne, Flow. Pl. West. India 245 & 248--249. 1894; Talbot, Syst. List Trees Shrubs Bomb., ed. 1, 159, 163, & 228. 1894; Briq. in Engl. & Prantl, Nat. Pflanzenfam., ed. 1, 4 (3a): 179 & 180, fig. 67 A--D. 1895; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 2: 857, 1021, & 1028. 1895; Trimen, Handb. Pl. Ceyl. 3: [345] & 362--363. 1895; Briq. in Engl. & Prantl, Nat. Pflanzenfam., ed. 1, 4 (3a): 383. 1897; Engl., Syllab. Pflanzenfam., ed. 2, 178. 1898; Van Tiegh., Journ. de Bot. 12: 359--365. 1898; Solered., Syst. Anat. Dicot. 712 & 716. 1899; Woodr., Journ. Bomb. Nat. Hist. Soc. 12: 360. 1899; Koord. & Valet., Med. ed. Lands Plant. 42: [163]. 1900; Gamble, Man. Indian Timb., ed. 2, imp. 1, 524 & 545. 1902; Engl., Syllab. Pflanzenfam., ed. 3, 188. 1903; Prain, Bengal Pl., imp. 1, 2: 824 & 837. 1903; Dalla Torre & Harms, Gen. Siphonog., imp. 1, 434. 1904; Perkins, Frag. Fl. Philip. 1--3. 1904; Merr., Bur. Govt. Lab. Bull. 27: 69. 1905; T. Cooke, Fl. Presid. Bombay, imp. 1, 3: 418 (1905) and imp. 1, 2: 434--435. 1906; Brandis, Indian Trees, imp. 1, 502, 513, & 514. 1906; E. D. Merr., Philip. Journ. Sci. Suppl. 1: 112. 1906; Engl., Syllab. Pflanzenfam., ed. 5, 193. 1907; King & Gamble, Journ. Roy. Asiat. Soc. Beng. 74 (2 extra): 861. 1908; D. H. Scott in Solered. [transl. Boodle & Fritsch], Syst. Anat. Dicot. 1: 631 & 634. 1908; Solered., Syst. Anat. Dicot. Ergänzt. 254 & 255. 1908; Engl., Syllab. Pflanzenfam., ed. 6, 198. 1909; Talbot, Forest Fl. Bomb., ed. 1, 2: 343 & 360--361. 1909; Craib, Kew Bull. Misc. Inf. 9: 445. 1911; J. C. & M. Willis, Rev. Cat. Flow. Pl. Ceyl. [Perad. Man. Bot. 2:] 69 & 164. 1911; Craib, Contrib. Fl. Siam Dicot. 167. 1912; Gilg in Engl., Syllab. Pflanzenfam., ed. 7, 314 & 384, fig. 413 H & J. 1912; E. D. Merr., Sp. Blanc. 335. 1918; E. D. Merr., Fl. Manila, imp. 1, 397 & 400. 1912; Gilg in Engl., Syllab. Pflanzenfam., ed. 8, 318, 319, & 392, fig. 413 H & J. 1919; H. J. Lam, Verbenac. Malay. Arch. 6, 329--331, 335, & 368. 1919; H. J. Lam in Lam & Bakh., Bull. Jard. Bot. Buitenz., ser. 3, 3: 99 & xvi. 1921; Gamble, Man. Indian Timb., ed. 2, imp. 2, 524 & 545. 1922; Haines, Bot. Bihar Orissa, ed. 1, 4: 703, 704, & 724. 1922; E. D. Merr., Enum. Philip. Pl. 3: 406. 1923; Gamble, Fl. Presid. Madras 2 (6): 1036 & 1103--1104. 1924; Gilg in Engl., Syllab. Pflanzenfam., ed. 9 & 10, 339, 340, & 416, fig. 418 H & J. 1924; Haines, Bot. Bihar Orissa, ed. 1, 1: 143. 1925; Janssonius, Mikrogr. Holz. 764 & 831. 1926; Wangerin, Justs Bot. Jahresber. 50 (1): 237. 1930; Stapf, Ind. Lond. 6: 243. 1931; Dop & Marchetti, Bull. Mus. Hist. Nat. Paris, ser. 2, 6: 387--390. 1934; Junell, Symb. Bot. Upsal. 1 (4): 132--134, 138--140, & 203--206, fig. 210. 1934; Dop in Lecomte, Fl. Gén. Indochine 4: 776 & 896 (1935) and 4: 897--898, fig. 93 (2--5). 1936; Diels in Engl., Syllab. Pflanzenfam., ed. 11, 339 & 416, fig. 432 H & J. 1936; Sulit, Makiling Echo 15: 253. 1936; Fletcher, Kew Bull. Misc. Inf. 1938: 401, 409, & 441. 1938; Mold., Suppl. List Comm. Vern. Names 9, 12, 16, & 21. 1940; Fedde & Schust., Justs Bot. Jahresber. 60 (2): 574. 1941; Mold., Alph. List Inv. Names 40. 1942; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 55, 56, 60, 62, 74, & 100. 1942; Mold., Phytologia 2: 113. 1944; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 2: 857 & 1028.

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Symphorema is the type genus of the family *Symphoremaceae* Mold. The family name was originally published as *Symphoremacées* by Van Tieghem (1898) - this French vernacular spelling was used also by Dop & Marchetti (1934). The latinized spelling as originally proposed by me (1948) is employed also by Janssonius (1926), Barkley (1949), Gundersen (1950), Lawrence (1951, 1971), Erdtman (1952, 1966), Angely (1956, 1957), DeRoon (1958), Van Steenis-Kruseman (1962), Soukup (1963, 1967, 1976), Van Steenis (1964), Naurois & Roux (1965), Munir (1967), Jeffrey (1969), Duke (1969), Tomlinson & Fawcett (1972), D'Arcy & Keating (1973), Napp-Zinn (1974), El-Gazzar (1974), and Traub (1974). The emended form, "*Symphorema(ta)ceae*" is used by Airy Shaw (1973) and Gibbs (1974), "*Symphoremataceae*" by Bullock (1958), Melchior (1964), Angely (1971), Hegnauer (1973), Winkler (1973), and Thanikaimoni (1976), and the misspellings, "*Symphormaceae*", "*Symphocemaceae*", "*Symphoraceae*" by Swarten (1948, 1949, 1950), "*Symphoricacaea*" by Lawrence (1951), "*Sympharemacae*" by Lombardo (1954), "*Symphoemaceae*" by Swarten (1955), and "*Symphoraceae*" by an anonymous writer (1969).

The group is regarded as a Subfamily "*Symphoremoideae*" by Briquet (1895) and Troncoso (1974) and "*Symphorematoideae*" by Angely (1971) and Hegnauer (1973). Schauer (1847) and Bentham (1876) regarded it as a Subtribe "*Symphoremeae* Meisner" of the Tribe Viticeae. Wight (1850) regarded it as a Tribe. Bullock (1958) accredits "*Symphoremataceae*" to Van Tieghem, Journ. de Bot. 12: 359 (1898), but it is written there only in the French vernacular form, "*las Symphoremacées*". Gundersen (1950), Metcalfe & Chalk (1950), Melchior (1964), Takhtajan (1969), Angely (1971), and Hutchinson (1973) still combine the family with the *Verbenaceae*. Airy Shaw (1966, 1973) gives a good condensed description of the

Symphoremaceae as a separate and distinct family, suggesting that it may be related to the *Plagiopteraceae*. Barkley (1965) follows a more traditional line in classifying it, along with the *Globulariaceae*, *Myoporaceae*, *Selaginaceae*, *Tetrachondraceae*, *Avicenniaceae*, and *Lamiaceae* in his Order 83, *LAMIALES*, while he puts the *Verbenaceae*, along with the *Phrymaceae*, *Cordiaceae*, *Ehretiaceae*, *Chloanthaceae*, *Stilbaceae*, and *Duckeodendraceae*, in Order 61, *VERBENALES*. Hutchinson (1973) also places the *Verbenales* and the *Lamiales* far apart in his classification, the former as the apex of his arborescent line, *Lignosae*, and the other as the apex of his herbaceous line, "*Herbaceae*".

The type species of *Symphorema* is *S. involucreatum* Roxb. The genus *Decadontia* W. Griff., included in the synonymy of *Symphorema* by Benthams (1876), Briquet (1895), Dalla Torre & Harms (1963), and others, is based on *D. coerulescens* W. Griff., a synonym of *Sphenodesme griffithiana* Wight and therefore belongs in the synonymy of *Sphenodesme* Jack. The *Sczeglewia* Turcz., referred to in the synonymy (above) is a synonym of *Pterospermum* Schreb. in the *Sterculiaceae*.

It should be noted that Munir (1967) erroneously cites the Meisner (1840) reference to *Symphorema* as "1843", that of Briquet (1895) as "1879" and "1897", and that of Walpers (1845) as "1844". The Endlicher (1838) reference is often cited as "1836--1856", but the page involved here was actually issued in 1838.

The generic name is taken from the Greek, *symphoreo*, meaning to accumulate or unite, because the small individual flowers are gathered together in heads surrounded by a conspicuous involucre of 6 large bracts. The genus consists of 3 known species, ranging from India and Sri Lanka, through Burma and Thailand, to the Philippine Islands and Tanimbar in the Moluccas. They are scandent shrubs or vines, glabrous, stellate-tomentose, or simply pilose; leaves decussate-opposite, entire or sinuate-dentate; cymes pedunculate, capitate, mostly 7-flowered, involucre, paniculate at the ends of the branches, often with a small bract at the base of the peduncle; involucre composed of 6 oblong "bracts" which are foliaceous, often showily colored, accrescent in fruit; the flower head a dichotomous cyme with normally 3 central and 4 lateral flowers, one pair of opposite large (true) bracts supporting the primary, while 2 smaller pairs (bracteoles) support the 2 secondary bifurcations; flowers sessile, small, centrifugal; calyx obovoid or turbinate, at first closed, later shortly 4--8-toothed, somewhat accrescent; corolla small, white, actinomorphic, normally 6--16-merous, its tube cylindric, widened above, the lobes 6--16, imbricate in bud, equal or subequal, narrowly oblong; stamens 6--16, as many as the corolla-lobes, inserted at the apex of the corolla-tube and alternate with its lobes; anthers exserted, ovate, the connective rather thick, the 2 thecae parallel; ovary basally 2-celled or imperfectly 4-celled, apically 1-celled, 4-ovulate, the ovules pendent from the apex of the free central placenta; style filiform, elongate; stigmas shortly bifid, the branches acute; fruit capsular, nearly dry, included by the mature calyx, obovoid or subglobose, by abortion 1-seeded, shallowly 2-sulcate,

indehiscent; seeds erect, the pericarp and testa thin-membranous, appressed to the embryo, the embryo thick-fleshy, conforming to the fruit in size and shape, the base entire, the radicle not prominent, the 2 cotyledons fleshy, often concave within.

Nair & Rehman (1962) describe the pollen-grains as 3-zonicolpate (as in *Sphenodesme*), not 3-zonicolporate with more than one endocolpium per colpium (as in *Congea*).

In connection with the relationship of the *Symphoremaceae* and *Verbenaceae*, Junell's (1934) comments are worth repeating here: "Tribus *Symphoremoideae* und *Avicennioideae*. Diese beiden Tribus werden hier in demselben Umfang wie bei Engler & Prantl genommen. Die erstere Tribus umfasst die Gattungen *Congea*, *Symphorema* und *Sphenodesma*, die letztere nur die Gattung *Avicennia*. Diese Pflanzen weichen von den übrigen Verbenaceen nicht unbeträchtlich ab, und sie sind auch von einigen Forschern aus dieser Familie ausgeschlossen worden. Bocquillon (1862--63, p. 181) betont ausdrücklich, dass sie mit *Verbenaceae* nichts zu tun haben. Ferner veröffentlichte Van Tieghem (1898) unmittelbar nachdem Briquets Bearbeitung der Familie in Engler & Prantl erschienen war, eine Untersuchung über die Anatomie und den Fruchtknotenbau dieser Pflanzen, in der er den Standpunkt vertritt, dass diese Gattungen keine Verbenaceen sind, sondern in einen ganz anderen Teil des Systems einzureihen sind. Van Tieghem stellte daher die beiden Familien *Avicenniaceae* und *Symphoremaceae* auf, welche er zusammen mit *Santalaceae* und mehrerer anderen Familien in seiner 'Ordre des Innucelles' oder *Santalinées* aufnahm. Seine Hauptgründe für diese Umstellung waren, dass diese Pflanzen zentrale Plazentation hätten, und dass die Samenanlagen weder Integument noch Nuzellus besäßen. Briquet (1900) unterzieht Van Tieghems Untersuchung einer kritischen Erörterung und zeigt, dass sie von geringem Wert ist, und dass sich seine systematischen Schlüsse auf mehrere falsche Auslegungen des Baus der Fruchtknoten und Samenanlagen stützen. Van Tieghems Beschreibungen des Gynäceumsbaus sind ziemlich eingehend; da sie aber nicht von Figuren begleitet sind, ist es schwer, sich eine klare Vorstellung vom Fruchtknotenbau bei den einzelnen Gattungen zu bilden."

The *Litsea* Juss., referred to in the synonymy (above) is a valid genus in the *Lauraceae*.

Fungi reported as attacking *Symphorema* are *Aschersonia philippensis*, *Crossospora symphorematis*, *Meliola symphorematae*, and *M. symphorematis* var. *major*.

The genus is said to be referred to in "Gazateer Bombay 15: 440" but as of now I have not been able to verify this reference.

List of excluded species:

Symphorema grossum Kurz = *Sphenodesme eryciboides* Kurz

Symphorema jackianum Kurz = *Sphenodesme pentandra* Jack

Symphorema microstylis Bedd. = *Sphenodesme ferruginea* (W. Griff.) Briq.

Symphorema paniculatum Heyne = *Sphenodesme involuocrata* (Presl) B. L. Robinson

Symphorema pentandra Jack = *Sphenodesme pentandra* Jack

Symphorema pentandrum Kurz = *Sphenodesme griffithiana* Wight

Symphorema unguiculata Kurz = *Sphenodesme involucrata* (Presl) B.

L. Robinson

Symphorema unguiculatum Kurz = *Sphenodesme involucrata* (Presl) B.

L. Robinson

Sczegleewia involucrata Turcz. = *Pterospermum obliquum* Blanco
Sterculiaceae

Sczegleëwia Turcz. ("1858" 1973) = *Pterospermum* Schreb., *Sterculiaceae*

Sczegleëwia involuceata Turcz. = *Pterospermum obliquum* Blanco,
Sterculiaceae

The C. B. Robinson 1464, distributed as *Symphorema* sp., is
Sphenodesme griffithiana Wight.

SYMPHOREMA INVOLUCRATUM Roxb., Pl. Coast Coromand. 2: 46, pl.

186. 1798 [not *S. involucratum* "Roxb. sensu Wall.", 1967,
nor Kew, 1972, nor Llanos, 1880, nor Spreng., 1858, nor Wall.,
1895].

Synonymy: *Analectis speciosa* Vahl, Dansk Nat. Selsk. Skriv. 6:
1810. *Lerchea rotundifolia* Hamilt. ex Mold., Fifth Summ. 2: 248,
in syn. 1971. *Sphenodesme larseni* Mold., Fifth Summ. 2: 624, in
syn. 1971.

Bibliography: Roxb., Pl. Coast Coromand. 2: 46, pl. 186. 1798;
Vahl, Dansk Nat. Selsk. Skriv. 6: 94. 1810; Spreng. in L., Syst.
Veg., ed. 16, 2: 208. 1825; Wall., Numer. List [47], no. 1740.
1829; Roxb., Fl. Ind., ed. 2, imp. 1, 2: 262--263. 1832; Wight,
Icon. Pl. Ind. Orient. 2: 5, pl. 362. 1840; Voigt, Hort. Suburb.
Calc. 470. 1845; Walp., Repert. Bot. Syst. 4: 116 & 134. 1845;
Schau. in A. DC., Prodr. 11: 621. 1847; Buek, Gen. Spec. Syn. Can-
doll. 3: 464. 1858; Llanos, Mem. Acad. Cienc. Madrid 3 (4): 507.
1858; W. Ell., Fl. Andhr. 63 & 97. 1859; Dalz. & Gibs., Bomb. Fl.
199. 1861; Thwaites & Hook. f., Enum. Pl. Zeyl., imp. 1, 242.
1861; Roxb., Fl. Ind., ed. 2, imp. 2, 326. 1874; Kurz, Forest Fl.
Brit. Burma 2: 254. 1877; Fern.-Villar in Blanco, Fl. Filip., ed.
3, Nov. App. 162. 1880; Gamble, Man. Indian Timb., ed. 1, 282 &
520. 1881; C. B. Clarke in Hook. f., Fl. Brit. India 4: 599. 1885;
Trimen, Syst. Cat. Flow. Pl. Ceyl. [Journ. Ceyl. Br. Roy. Asiat.
Soc. 9:] 69. 1885; Watt, Dict. Econ. Prod. India 5 (3): 396. 1889;
Baill., Hist. Pl. 11: 89. 1891; Watt, Dict. Econ. Prod. India 6
(3): 396. 1891; Nairne, Flow. Pl. West. India 248--249. 1894; Tal-
bot, Syst. List Trees Shrubs Bomb., ed. 1, 163 & 228. 1894; Briq.
in Engl. & Prantl, Nat. Pflanzenfam., ed. 1, 4 (3a): 179 & 180,
fig. 67 A--D. 1895; Jacks. in Hook. f. & Jacks., Ind. Kew., imp.
1, 2: 1021. 1895; Trimen, Handb. Fl. Ceyl. 3: 363. 1895; Woodr.,
Journ. Bomb. Nat. Hist. Soc. 12: 360. 1899; Gamble, Man. Indian
Timb., ed. 2, imp. 1, 545. 1902; Prain, Bengal Pl., ed. 1, 837.
1903; Brandis, Indian Trees, imp. 1, 514. 1906; T. Cooke, Fl.
Presid. Bomb., imp. 1, 2: 435. 1906; Solered., Syst. Anat. Dicot.
Ergänz. 254 & 255. 1908; Talbot, Forest Fl. Bomb., ed. 1, 2: 360-
361. 1909; Craib, Kew Bull. Misc. Inf. 9: 445. 1911; J. C. & M.
Willis, Rev. Cat. Flow. Pl. Ceyl. [Perad. Man. Bot. 2:] 69. 1911;
Craib, Contrib. Fl. Siam Dicot. 167. 1912; Gilg in Engl., Syllab.
Pflanzenfam., ed. 7, 314, fig. 413 H & J. (1912) and ed. 8, 318,

fig. 413 H & J. 1919; Gamble, Man. Indian Timb., ed. 2, imp. 2, 545. 1922; Haines, Bot. Bihar Orissa, ed. 1, 4: 724. 1922; Gamble, Fl. Presid. Madras 2 (6): 104. 1924; Gilg in Engl., Syllab. Pflanzenfam., ed. 9 & 10, 339, fig. 418 H & J. 1924; Stapf, Ind. Lond. 6: 243. 1931; Diels in Engl., Syllab. Pflanzenfam., ed. 11, 339, fig. 432 H & J. 1936; Dop in Lecomte, Fl. Gén. Indo-chine 4: 897-898, fig. 93 (2--5). 1936; Fletcher, Kew Bull. Misc. Inf. 1938: 441. 1938; Mold., Suppl. List Comm. Vern. Names 9, 12, 16, & 21. 1940; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 55, 56, 60, & 100. 1942; Mold., Phytologia 2: 113. 1944; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 2: 1021. 1946; Razi, Journ. Mysore Univ. 7 (4): 64. 1946; Mold., Known Geogr. Distrib. Verbenac., ed. 2, 128--130, 138, & 174. 1949; Talbot, Trees Shrubs, ed. 3, 406. 1949; Erdtman, Pollen Morph. Pl. Tax., ed. 1, 448--449. 1952; T. Cooke, Fl. Presid. Bomb., imp. 2, 2: 515 & 610. 1958; Abeywickrama, Ceyl. Journ. Sci. Biol. 2: 218. 1959; Anon., Kew Bull. Gen. Index 274. 1959; Mold., Résumé 164, 166, 167, 178, 234, & 439. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 3, 2: 1021. 1960; Nath, Bot. Surv. South. Shan States 305. 1960; Haines, Bot. Bihar Orissa, ed. 2, 2: 759. 1961; Nair & Rehman, Bull. Bot. Gard. Lucknow 76: 22. 1962; Mold., Résumé Suppl. 3: 35. 1962; Mold., Dansk Bot. Arkiv 23: 86. 1963; Prain, Bengal Pl., imp. 2, 2: 625. 1963; Thwaites & Hook. f., Enum. Pl. Zeyl., imp. 2, 242. 1964; Erdtman, Pollen Morph. Pl. Tax., ed. 2, 448--449, fig. 256 H. 1966; Sebastine & Ramamurthy, Bull. Bot. Surv. India 8: 171 & 180. 1966; T. Cooke, Fl. Presid. Bomb., imp. 3, 2: 515 & 610. 1967; Munir, Gard. Bull. Singapore 22: [153]--155, 164--168, & 171, fig. 3, map 2. 1967; Vajravelu & Rathakrishn., Bull. Bot. Surv. India 9: 43. 1967; J. L. Ellis, Bull. Bot. Surv. India 10: 157. 1968; Gunawardena, Gen. Sp. Pl. Zeyl. 148. 1968; Venkataredi, Bull. Bot. Surv. India 11: 258. 1969; Mold. in Menninger, Flow. Vines 330. 1970; Blasco, Inst. Franç. Pond. Trav. Sect. Scient. Techn. 10: 33, 38, & 423. 1971; Brandis, Indian Trees, imp. 2, 514. 1971; Erdtman, Pollen Morph. Pl. Tax., ed. 1, 448--449. 1971; Mold., Fifth Summ. 1: 278, 281, 284, 298, & 390 (1971) and 2: 548, 624, 844, & 970. 1971; Roxb., Fl. Ind., ed. 2, imp. 3, 2: 326. 1971; Gamble, Man. Indian Timb., ed. 2, imp. 3, 545. 1972; Talbot, Forest Fl. Bombay, ed. 2, 2: 360--361. 1976.

Illustrations: Roxb., Pl. Coast Coromand. 2: pl. 186 (in color). 1798; Wight, Icon. Pl. Ind. Orient. 2: pl. 362. 1840; Baill., Hist. Pl. 11: 89. 1841; Briq. in Engl. & Prantl, Nat. Pflanzenfam., ed. 1, 4 (3a): 180, fig. 67 A--D. 1895; Gilg in Engl., Syllab. Pflanzenfam., ed. 7, 314, fig. 413 H & J. (1912), ed. 8, 318, fig. 413 H & J (1919), and ed. 9 & 10, 339, fig. 418 H & J. 1924; Diels in Engl., Syllab. Pflanzenfam., ed. 11, 339, fig. 432 H & J. 1936; Dop in Lecomte, Fl. Gén. Indo-chine 4: 897, fig. 93 (2--5). 1936; Erdtman, Pollen Morph. Pl. Tax., ed. 2, 449, fig. 256 H. 1966; Munir, Gard. Bull. Singapore 22: 166, fig. 3. 1967.

A large shrubby climber, rampant, often ascending tall trees; stems slender, the younger parts stellate-tomentose; bark thick, gray, corky, vertically deeply furrowed; wood white, soft, porous, the pores large, often subdivided by wedges between the few moder-

ately broad medullary rays; leaves decussate-opposite, often large on the main branches, but often only 0.8--1.6 cm. long on flowering branches; petioles normally about 5 mm. long; leaf-blades ovate or elliptic, 2--6.5 cm. long on non-flowering branches and 4 cm. wide, apically subacute, marginally usually coarsely crenate-serrate, basally rounded, pubescent or villous when young, ultimately nearly glabrous above, remaining pubescent beneath with close white stellate pubescence; peduncles about 2.5 cm. long; bracts lanceolate-oblong, semi-membranous, about 6 mm. long during anthesis, venose, pubescent or villous, in fruit to 3.2 cm. long and 1.5 cm. wide, spatulate-elliptic, thinly pubescent; calyx green, persistent, about 4 mm. long, ribbed, stellate-tomentose, its rim very shortly 6--8-toothed with oval subacute teeth, in fruit 6 mm. long or longer, narrowed upwards; corolla white, about 6 mm. long, the tube short, cylindric, the 6--8 lobes about as long as the limb, linear, apically acute, reflexed; pollen 3-colpate (occasionally 6-rugate or more or less polyrugate), prolate, $49 \times 34 \mu$; involucre in fruit thin-membranous, prominently reticulate; fruit about 4 mm. long, glabrous.

This plant inhabits monsoon forests in India, dry deciduous forests, the banks of small streams, the edges of semi-evergreen forests, and open evergreen jungles in Burma and Thailand, and has been encountered by recent collectors at altitudes of 100--1330 m., flowering from February to May, fruiting in May and June.

The species is apparently native from western peninsular India, through Burma and Thailand, and south to Sri Lanka. Talbot (1949) gives its distribution as "Western Peninsula from the Konkan southward, Ceylon. Throughout the Konkan and North Kanara in moist forests, common in the forest near Yellapur." Naire (1894) says: "Konkan (Gamble). It appears to be rare [in western India]. D[alzell] had it between Nagotna and Alibag; I at two places in the Rutnagherry collectorate. It has some resemblance to *Getonia floribunda*." Cooke (1906) gives its overall distribution as western peninsular India, Burma, and Sri Lanka. Munir (1967) doubts that it is native in Sri Lanka, having been collected there only once by Rev. S. O. Glenie. Thwaites cites this collection as his C.P. 3645 and comments "very rare" in the "Dry region". Voigt (1845) reports it as cultivated in Calcutta.

Saldanha records *S. involucratum* as an "occasional woody scandent straggler" in Mysore; Razi (1946) also reports it from Mysore and calls it a chamaephyte according to Raunkiaer's scheme of life-forms. Nath (1960) lists it from the Southern Shan States of Burma. Smitinand reports it "scattered" in Thailand, and Sørensen and his associates describe it there as a "4 m. tall tree", probably meaning that it was climbing in such a tree. Watt (1893) calls it "A large deciduous scandent shrub, frequent in the Western Decan Peninsula from the Konkan southward; also in Burma and Ceylon.. the wood used for fuel". Clarke (1885) cites only *Hamilton s.n.* and gives the species' distribution much the same, adding only "Behar". He notes that the leaves on flowering branches are often only $1/2$ -- $2/3$ inch long and that "The picture of Roxburgh shows the corolla decidedly too large, which misled Wallich, whom Schauer

followed. Kurz.....says this species is 'common all over Ava, Martaban and Pegu' [in Burma] where no one else has found it: it might be suspected that Kurz had mistaken for it some *Sphenodesme*, but he describes the corolla as having 6--8 linear-lanceolate acute lobes, and the leaves as coarsely toothed." Munir (1967) cites numerous Burmese collections, including several from Pegu.

Roxburgh's original (1798) description of *S. involucreatum* is: "Suroodo of the Relingas. A large scandent shrub, a native of forests; casts its leaves during the cold season, but they return with the flowers in February, March, and April. I know of no use made of any part of this shrub, except for fuel." *Sphenodesme larseni* is based on Sørensen, Larsen, & Hansen 861 from Thailand; *Lerchea rotundifolia* is based on Francis Buchanan Hamilton 1499 from Madras, deposited in the Edinburgh herbarium, a sheet comprising a mixture of *Symphorema involucreatum* and something else.

Nair & Rehman (1962) describe the pollen of *S. involucreatum* as prolate, 32 x 23 μ (range 28--33 x 21--25 μ), the ectine surface psilate, with a faint L0, and the other characters as seen in *Sphenodesme involucreata* (Presl) B. L. Robinson. Erdtman (1966) describes it as 3-colpate and prolate, the dimensions about 35 x 25 μ . All collectors who describe the color of the corollas give it as "white".

Common and vernacular names recorded for the species are "gubba dara", "gubba dara", "konda tekkali", "nway-sat", "nwe-sat", "nwezat", "sigyi", "suroodo", "surudu", "surudu", "thamaka", and "thamanwe".

Prain (1903) separates *S. involucreatum* from *S. polyandrum* Wight as follows:

Corolla 1/4 inch long, 6--8-lobed.....*S. involucreatum*.
Corolla 1/2 inch long, 12--16-lobed.....*S. polyandrum*.

Sebastine & Ramamurthy (1966) speak of *S. involucreatum* as occurring "sporadically" and cite their no. 16152. Thwaites (1861) cites only C.P.3645 from Sri Lanka. Ellis (1968) cites his no. 23758 from Andhra Pradesh, India. Vaharavelu & Rathakrishnan (1967) cite their no. 23544 from Madras; Venkatareddi (1969) cites Reddi s.n. and reports the species "common in [the] Bushi and Kate Pani Forests."

Clarke (1885), Watt (1893), and Dop (1936) include *Congea paniculata* Wall. in the synonymy of *Symphorema involucreatum*, but this name, instead, is now regarded as belonging in the synonymy of *Sphenodesma involucreata* var. *paniculata* (C. B. Clarke) Munir. Several bibliographic references to *Symphorema involucreatum* are sometimes cited incorrectly in the literature of the species. For instance, the Walpers (1845) reference is cited by Munir as "1844", but pages 1--192 of volume 4 of the Walpers work were not issued until 1845. The Haines (1922) reference is sometimes erroneously cited as "6: 724. 1924", while Munir cites it as being in part "3", but pages 419--752 are actually in part 4 of the work. He also misdates the Briquet (1895) work as "1897". The species is said to be referred to in "Gazateer Bombay 15: 440", but to date I have not been able to verify this reference. The Thwaites & Hooker (1861) work is sometimes erroneously cited as "1839".

Cooke (1906) cites unnumbered collections of Dalzell, Dalzell & Gibson, Law, Stocks, Talbot, and Woodrow from India. Munir (1967) cites the following: INDIA: Andhra Pradesh: Barber 1573; Beddome 39, 6519, 6520, 6521, 6522, 6523, & s.n. Bihar & Orissa: Carter 1507; Fischer & Gage 83; Gamble 13745; Haines 2542 4944; Madden 663. Kerala: Bourdillon 537. Konkan: Stocks & Law s.n. Madhya Pradesh: Collector undetermined s.n.; Duthie 9687. Madras: Cleg-horn s.n.; Perrottet 487; Roxburgh s.n.; Wight 909, 2303, 2586, & 2587. Maharashtra: Dalzell s.n.; Herb. Blatter 6112. Mysore: Fernandes 220; Talbot 52 & s.n. Nagaland: Beddome s.n.. SRI LANKA: Thwaites C.P.3645. BURMA: Aubert & Gage s.n.; Brandis 881; Collect 435; Khalil s.n.; Kingdon-Ward 21976; Kurz 1040, 2392, & 2399; Lace 2794; Parkinson 15773 & 15750; Robertson 316; Rogers 274 & 910. THAILAND: Kerr 991, 2932, & 5234; Larsen & Hansen 861; Smitinand 4169.

Material of *Symphorema involucreatum* has been misidentified and distributed in some herbaria as *Sphenodesme* sp.

Citations: INDIA: Andhra Pradesh: Beddome s.n. (Pd). Karnataka: Saldanha 16774 (W--2653630); Talbot s.n. [Yellapore, March 1882] (Pd), s.n. [N. Canara, 10/82] (Pd), s.n. [Yellapore, April 12, 1885] (Pd). Kerala: Santapau 3982 (N). Maharashtra: Stocks, Law, etc. s.n. [Malabar, Concan] (Mu--1063, Pd, S). Tamil Nadu: Hamilton 1499 (Ed); Wight 2303 (Mu--1457, Pd, S), 2586/1837 (Pd), s.n. [Peninsula Ind. Orientalis] (N). SRI LANKA: Glenie s.n. [Thwaites C.P.3645] (Pd). BURMA: Aubert & Gage 5721 (Vt); Dickson 7104 (A); Kingdon-Ward 21796 (Bm); Kurz 1040 (Mu--1780); Meebold 16569 (S, S). THAILAND: Larsen, Larsen, Nielsen, & Santisuk 32148 (Ac, Ld); Smitinany 4169 (Z); Sørensen, Larsen, & Hansen 861 (Cp, Z), 7022 (Mi). LOCALITY OF COLLECTION UNDETERMINED: Collector undetermined s.n. (Cp, N--photo, Z--photo).

SYMPHOREMA LUZONICUM (Blanco) Fern.-Villar in Blanco, Fl. Filip., ed. 3, 4: Nov. App. 162. 1880.

Synonymy: Balibai Blanco, Fl. Filip., ed. 1, 406--407. 1837. *Litsaea luzonica* Blanco, Fl. Filip., ed. 2, 284. 1845. *Symphorensa involucreatum* Spreng. ex Llanos, Mem. Acad. Cienc. Madrid 3 (4): Nuev. App. 508. 1858. *Sczegleewia luzonensis* Turcz., Bull. Soc. Imp. Nat. Mosc. 36 (2): 212. 1863. *Symphorema glabrum* Hassk., Flora 48: 402. 1865. *Symphorema involucreatum* Llanos ex Fern.-Villar in Blanco, Fl. Filip., ed. 3, 4: Nov. App. 162, in syn. 1880 [not *S. involucreatum* Roxb., 1798]. *Sczegleewia luzonensis* Turcz. apud Fern.-Villar in Blanco, Fl. Filip., ed. 3, 4: Nov. App. 160, in syn. 1880. *Symphorema involucreatum* Spreng. ex Fern.-Villar in Blanco, Fl. Filip., ed. 3, 4: [105]. 1880. *Symphorema* sp. Benth. & Hook. ex Fern.-Villar in Blanco, Fl. Filip., ed. 3, 4: Nov. App. 162, in syn. 1880. *Sczegleewia luzoniensis* Turcz. ex Vidal, Sin. Fam. Gen. Pl. Le. Filip. [Introd. Fl. For. Filip.] 2: 36, in syn. 1883. *Symphorema luzoniense* Benth & Hook. ex Vidal, Sinop. Atlas 36, pl. 75, fig. F. 1883. *Symphorema luzoniensis* Vidal, Phan. Cuming. Philip. 13 & 135. 1885. *Symphorema luzonicum* Fern.-Villar apud Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 2: 1021. 1895. *Symphorema luzoniense* Vidal apud Jacks. in Hook. f.

& Jacks., Ind. Kew., imp. 1, 2: 1021. 1895. *Symphorema cumingianum* Briq. in Engl. & Prantl, Nat. Pflanzenfam., ed. 1, 4 (3a): 180, nom. nud. 1895. *Sczegleewia luconiensis* Turcz. ex E. D. Merr., Sp. Blanc. 335, in syn. 1918. *Litsea luzonica* Blanco apud E. D. Merr., Sp. Blanc. 335, in syn. 1918. *Symphorema luzonense* Vidal apud Stapf, Ind. Lond. 6: 243. 1931. *Symphorema luzonensis* Turcz. ex Mold., Résumé 344, in syn. 1959. *Symphorema luzoniense* (Turcz.) Benth. & Hook. apud Munir, Gard. Bull. Singapore 22: 162, in syn. 1967. *Symphoroma luzonicum* (Blanco) Vill., in herb. *Symphorena luzonicum* F.-Vill., in herb.

Bibliography: Blanco, Fl. Filip., ed. 1, 406--407 (1837) and ed. 2, 284. 1845; Llanos, Mem. Acad. Cienc. Med. 3 (4): Nuov. App. 508. 1858; Turcz., Bull. Soc. Imp. Nat. Mosc. 36 (2): 212--213. 1863; Hassk., Flora 48: 402. 1865; Fern.-Villar in Blanco, Fl. Filip., ed. 3, 104, [105], 108, & 4: Nov. App. 160--162. 1880; Vidal, Sin. Fam. Gen. Pl. Leñ. Filip. [Introd. Fl. For. Filip.] 1: 202 (1883) and 2 [Atlas] 36, pl. 75, fig. F. 1883; Vidal y Soller, Phan. Cuming. Philip. 13 & 135. 1885; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 2: 857 & 1021. 1895; Briq. in Engl. & Prantl, Nat. Pflanzenfam., ed. 1, 4 (3a): 180. 1895; Perkins, Frag. Fl. Philip. 3. 1904; E. D. Merr., Bur. Govt. Lab. Bull. 27: 69. 1905; E. D. Merr., Philip. Journ. Sci. Bot. 1, Suppl. 1: 122. 1906; E. D. Merr., Fl. Manila, imp. 1, 400. 1912; E. D. Merr., Sp. Blanc. 335. 1918; H. J. Lam, Verbenac. Malay. Arch. 330--331 & 368. 1919; H. J. Lam in Lam & Bakh., Journ. Jard. Bot. Buitenz., ser. 3, 3: 99 & xvi. 1921; E. D. Merr., Enum. Philip. Pl. 3: 406. 1923; Junell, Symb. Bot. Upsal. 1 (4): 134 & 138, fig. 210. 1934; Sulit, Makileng Echo 15: 253. 1936; Mold., Suppl. List Comm. Verb. Names 9. 1940; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 62 & 100. 1942; Mold., Phytologia 2: 113. 1944; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 2: 857 & 1021. 1946; Mold., Alph. List Inv. Names Suppl. 1: 21. 1947; Mold., Known Geogr. Distrib. Verbenac., ed. 2, 142, 144, & 147. 1949; Erdtman, Pollen Morph. Pl. Tax., ed. 1, 449, fig. 256 H. 1952; Anon., U. S. Dept. Agr. Bot. Subj. Index 15: 14359. 1958; Mold., Résumé 185, 191, 236, 237, 318, 343, 344, 350, 351, & 439. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 3, 2: 857 & 1021. 1960; Hansford, Sydowia, ser. 2, Beih. 2: 692 & 693. 1961; Erdtman, Pollen Morph. Pl. Tax., ed. 2, 446, fig. 256 H. 1966; Munir, Gard. Bull. Singapore 22: [153], 154, 156, 161--165, & 171, map 4, fig. 2. 1967; E. D. Merr., Fl. Manila, imp. 2, 400. 1968; Mold. in Menninger, Flow. Vines 330. 1970; Mold., Fifth Summ. 1: 318, 327, & 395 (1971) and 2: 568, 620, 634, & 844. 1971; Mold., Phytologia 45: 277. 1980.

Illustrations: Vidal, Sin. Fam. Gen. Pl. Leñ. Filip. [Introd. Fl. For/ Filip.] 2 [Atlas] pl. 75 F. 1883; Junell, Symb. Bot. Upsal. 1 (4): 134, fig. 210. 1934; Erdtman, Pollen Morph. Pl. Tax., ed. 1, 449, fig. 256 H (1952) and ed. 2, 449, fig. 256 H. 1966; Munir, Gard. Bull. Singapore 22: 162, fig. 2. 1967.

A scandent shrub, stout, glabrous, high-climbing, woody vine, liana, or scrambler, to 20 m. long, sometimes suberect or tree-like and then 3.5 m. tall; stems very much twisted, fluted when old; branchlets more or less tetragonal, gray-tomentose when young,

glabrescent in age; petioles often modified for climbing, about 5 mm. long, gray-tomentose; leaf-blades coriaceous or subcoriaceous, ovate or ovate-oblong, 4.5--9.5 cm. long, 2--4 cm. wide, apically acute or obtusely acuminate, marginally entire, basally subtruncate, glabrous on both surfaces or somewhat hairy on the midrib; secondaries 4 per side, the lowest pair often more prominent and very long; inflorescence very profuse; cymes opposite, rarely paired in the axil of a single bract or borne on a single peduncle; involucral bracts 6, white or becoming pale-lavender, pinkish, or purple, each subtending a single flower (the central terminal flower not subtended by a bract), obovate, softly pubescent on both surfaces, with a distinct midrib and some smaller secondaries arising from it, the first (terminal) pair 2.5--3.5 cm. long and 0.8--1.4 cm. wide, the other (lateral) pairs 1.5--2.1 cm. long and 3.5--10 mm. wide; peduncles 2.5--4 cm. long, gray-tomentose; calyx 7--8 mm. long, externally minutely tomentellous, within with long silvery antrorse hairs, its rim 5- (or 6-) toothed, the teeth short and subequal, or sometimes somewhat 2-lipped with 2 larger and 3 smaller teeth; corolla blue, its tube 6.5--8 mm. long, externally glabrous, more or less villous in the throat, the lobes 6--12, narrow, 3--5 mm. long, 1.5--2 mm. wide, glabrous on the inner surface, softly pubescent outside; stamens 8--16, inserted in the throat of the corolla-tube, about 6 mm. long, exserted; lower part of the filaments often connate in pairs; style slender, about 1.5 cm. long, exserted; stigma shortly bifid, the lobes apically flattened; ovary borne on a short narrow gynophore, glabrous, imperfectly 4-celled and -seeded.

This species is known only from the Philippine Islands and Tanimbar island in the Moluccas of Indonesia. Munir (1967) has designated as neotype *Llanos 69* in the Arnold Arboretum herbarium.

Recent collectors have found the species growing along highways with *Celtis philippinensis*, in primary, *Dipterocarpus*, and deep lowland forests, at altitudes of 5--100 m., flowering from October to April, as well as in June and August, fruiting in February and June. Ahern's collector reports it "common" in the forests of Luzon, where Pancho asserts that it is "one of the most beautiful wild flowers of the Philippine Islands....common along creeks..... and often cultivated." Sulit (1936) also lists it as cultivated in the Philippines. Clemens records it from Santiago island. The "flowers" [corollas?] are said to have been "whitish-violet" on *Bañaga 6*, "blue" on *Pancho 1065* and *Williams 707*, and "purple" on *Borssum 3283* and *Pancho 1892*.

It is worth noting that Lam (1919) gives the date for the original publication of *S. glabrum* as "1835", apparently in error, and on this basis accepts it as the earliest and therefor accepted name for the taxon. Similarly, the Briquet (1895) reference is sometimes mis-cited as "1894" as per an apparently misleading title page. It seems, however, that the entire section on the *Verbenaceae* in this volume was not issued until 1895. The Turczaninow (1863) reference is sometimes mis-cited as "36 (3)".

Sczegleewia luçonensis Turcz. is based on *Cuming 13* of the 1839 supplementary distribution, probably deposited in the Kharkov her-

barium.

Erdtman (1966) describes the pollen of *Symphorema luzonicum*, on the basis of Elmer 17467, as "3-colpate (occasionally 6-rugate or more or less polyrugate), prolate, 49 x 34 μ ."

Common and vernacular names recorded for the species are "balabai", "malabulaon", "malascog", "malasiad", "malasiag", "malaskog", "mulauing-baging", "mulauing-baging", "pamaclaquin", "pamulaklakin", and "pamulak-lakin".

Hansford (1961) records the following fungi as attacking *Symphorema luzonicum*: *Meliola premnae* Hansf. and *M. symphorematae* Stev. & Rold., on the basis of Stevens 62 & 74 for the former and Stevens 655 for the latter.

Vidal (1885) cites Cuming 648. Munir (1967) cites the following collections: PHILIPPINE ISLANDS: Busuanga: Weber 1540. Luzon: Abadilla, Philip. Nat. Herb. 35389; Ahern 40; Philip. Bur. Sci. 1172, 4454, 4455, 4456; Philip. Forest Bur. 2654; Amihan PNH. 40320; Baker 3042; Bañaga PNH.33398; Barnes 343; Borden PFB.2549; Clemens 18176, PBS.17534; Cuming 648, s.n.; Ebron PNH.34236; Edano PNH.17784, 17797, 17960; Elmer 9418, 17419, 17429, 17467; Felix PFB.30914; Gregory 81; Hagan PNH.35488; Holman 53; Llanos 69; Loher 13444, s.n.; Mabanag PNH.9601; Merrill 1421, 1934, 2075, 2416, Sp. Blanc. 467; Meyer PFB.2516; Pascual PFB.28766; Ramos PBS.27122; Sinclair 9470; Steiner 1011, 1472; Sulit PNH.8320; Susara PNH.37313; Tamesis PFB.11924; Topping PBS.5228; Vidal 501, 848; Villavicencio PFB.23654; Whitford 2; Williams 707. Mindoro: Merrill 954. MOLUCCA ISLANDS: Tanimbar: Borssum 3283.

Merrill (1918) cites Gates s.n. [Merrill Sp. Blanc. 46] from Luzon and notes that "this species is common and widely distributed in Luzon at low altitudes."

Material of *Symphorema luzonicum* has been misidentified and distributed in some herbaria as *S. involucreatum* Roxb. On the other hand, the Steiner 504, distributed as *S. luzonicum*, actually is *Congea velutina* Wight.

Citations: PHILIPPINE ISLANDS: Busuanga: C. M. Weber 1546 (Cm, W--712460). Luzon: Ahern's Collector 40 (Mi, W--447327), s.n. [Herb. Philip. Forest Bur. 1172] (N, W--625910), s.n. [Herb. Philip. Forest Bur. 2654] (Bz--23497, N, Po--63519, W--852615); Asuncion s.n. [Gates 5406; Herb. Philip. Col. Agr. 39355] (Ws); Bañaga 6 [Philip. Nat. Herb. 33398] (W--2212453); P. T. Barnes s.n. [Herb. Philip. Forest Bur. 343] (N, W--851021); Borden 19034 (Ca--239600), s.n. [Herb. Philip. Forest Bur. 2549] (Bz--23495, N, W--625650); J. Clemens s.n. [Herb. Philip. Bur. Sci. 17534] (B, Bz--23498); M. K. Clemens 18176 (La, La); M. T. Cruz 225 (Ur); Cuming 648 (N, N); Elmer 17419 (Bi, Bz--23489, Ca--270713, Du--176346, Mi, N, S, Ut--66549, Vi, W--1237083), 17429 (Bi, Bz--23490, Ca--270932, Du--176341, Mi, N, S, Ut--71749, Vi, W--1237093), 17467 (Bi, Bz--23491, Ca--271562, Du--174274, Mi, N, N, S, Ut--71622, Vi, W--1237108); F. C. Gates 6601 (Ka--66827); Gates & Catalan 6660 [Merrill Sp. Blanc. 467] (Bz--23492, N, W--904144); Holman s.n. [April 15, 1911] (Du--66952); Kienholz 340 [Herb. Philip. Bur. Sci. 15322] (Ur); Loher 4454 (W--446890), 4455 (Mu--3955, W--446891), 4456 (Mu--3956, W--446892), 6571 (Bz--23500, Bz--23501, Mu--4208, W--713690), 6582

(Mu--4209), 13444 (Ca--243082, Mu--4366), s.n. [Herb. Philip. Forest Bur. 14923] (Bz--23499), s.n. [Montalban, January 1903] (W--448249), s.n. [Montalban, May 1915] (Ca--229201); *Mabanag* s.n. [Philip. Nat. Herb. 9601] (W--2125858, W--2376132); *E. D. Merrill* 1334 (N, W--436305), 1421 (N, W--436386), 2075 (N, W--437025), 2416 (N, W--437374); *R. Meyer* s.n. [Herb. Philip. Forest Bur. 2516] (Bz--23496, N, Po--63521, W--852435); *P. V. Pancho* 198 (Ba), 1065 (Ba), 1892 (Ba); *Pascual* s.n. [Herb. Philip. Forest Bur. 28776] (Ca--238965); *Quisumbing* 7960 (Mi); *Ramnindo* s.n. [Febr. '13] (S); *M. Ramos* s.n. [*E. D. Merrill* Philip. Pl. 289] (Mu--4210, Ut--22495, W--1178289), s.n. [Herb. Philip. Bur. Sci. 27122] (Bz--23488); *Rothdauscher* X.I (Mu--1659), s.n. [Manilla 1879] (Mu--1660); *Tamesis* s.n. [Herb. Philip. Forest Bur. 11924] (Bi); *Topping* s.n. [Herb. Philip. Bur. Sci. 5228] (Bz--23494); *Villavicencio* s.n. [Herb. Philip. Forest Bur. 23654] (W--1294942); *Whitford* 2 (N, W--851444); *R. S. Williams* 707 (N, Qu, W--707197). Mindoro: *E. D. Merrill* 954 (N, W--435927). Palawan: *Bermejós* s.n. [Herb. Philip. Bur. Sci. 233] (Gg--31261), s.n. [Dec. 1905] (Bz--23493, N, W--439488). GREATER SUNDA ISLANDS: Java: *Herb. Harvey* s.n. [Java] (Du--166401). MOLUCCA ISLANDS: Tanimbar: *Borssum* 3283 [Bisset 718] (Ba).

SYMPHOREMA POLYANDRUM Wight, Icon. Pl. Ind. Orient. 2: 5, pl. 363 [as "*polyandra*"]. 1840; Schau. in A. DC., Prodr. 11: 621. 1847.

Synonymy: *Symphorema involucrata* Roxb. ex Wall., Numer. List [47], no. 1740. 1829. *Symphorema polyandra* Wight, Icon. Pl. Ind. Orient. 2: 5, pl. 363. 1840. *Symphorema involucratum* Kew ex C. B. Clarke in Hook. f., Fl. Brit. India 4: 599, in syn. 1885 [not *S. involucratum* Llanos, 1880, nor Roxb., 1798, nor Spreng., 1858]. *Congea involucratum* Wall. apud Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 1: 595, in syn. 1893. *Symphorema involucratum* Wall. apud Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 2: 1021, in syn. 1895. *Symphorema involucratum* "Roxb. sensu Wall." apud Munir, Gard. Bull. Singapore 22: 168, in syn. 1967.

Bibliography: Wall., Numer. List [47], no. 1740. 1829; Wight, Icon. Pl. Ind. Orient. 2: 5, pl. 363. 1840; Voigt, Hort. Suburb. Calc. 470. 1845; Schau. in A. DC., Prodr. 11: 621. 1847; Wight, Illust. Ind. Bot. 2: pl. 173 bis. 1850; Buek, Gen. Spec. Syn. Candoll. 3: 464. 1858; Kurz, Forest Fl. Brit. Burma 2: 254--255. 1877; Gamble, Man. Indian Timb., ed. 1, 282 & 520. 1881; C. B. Clarke in Hook. f., Fl. Brit. Ind. 4: 599--600. 1885; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 1: 595. 1893; Nairne, Flow. Pl. West. India 249. 1894; Talbot, Syst. List Trees Shrubs Bomb., ed. 1, 163 & 228. 1894; Briq. in Engl. & Prantl, Nat. Pflanzenfam., ed. 1, 4 (3a): 180. 1895; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 2: 1021. 1895; Woodr., Journ. Bomb. Nat. Hist. Soc. 12: 360. 1899; Gamble, Man. Indian Timb., ed. 2, imp. 1, 545. 1902; Prain, Bengal Pl., imp. 1, 837. 1903; Brandis, Indian Trees, imp. 1, 514. 1906; T. Cooke, Fl. Presid. Bombay, imp. 1, 2: 434--435. 1906; Talbot, Forest Fl. Bombay, ed. 1, 2: 360 & 361. 1909; Gamble, Man. Indian Timb., ed. 2, imp. 2, 545. 1922; Haines, Bot.

Bihar Orissa, ed. 1, 4: 724. 1922; Gamble, Fl. Presid. Madras 2 (6): 1104. 1924; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 55, 74, & 100. 1942; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 1: 595 (1946) and imp. 2, 2: 1021. 1946; Talbot, Trees Shrubs Bomb., ed. 3, 406. 1949; Mold., Known Geogr. Distrib. Verbenac., ed. 2, 128, 163, & 174. 1949; T. Cooke, Fl. Presid. Bombay, imp. 2, 2: 515 & 610. 1958; Mold., Résumé 164, 222, & 439. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 3, 1: 595 (1960) and imp. 3, 2: 1021. 1960; Haines, Bot. Bihar Orissa, ed. 2, 2: 759. 1961; Mold., Résumé Suppl. 4: 8. 1962; Prain, Bengal Pl., imp. 2, 625. 1963; Munir, Gard. Bull. Singapore 21: 333 & 334 (1966) and 22: [153], 156, & 168--171, map 3, fig. 4. 1967; T. Cooke, Fl. Presid. Bomb., imp. 3, 2: 515 & 610. 1967; Patel, Fl. Melghat 270. 1968; Mold. in Menninger, Flow. Vines 330. 1970; Brandis, Indian Trees, imp. 2, 514. 1971; Malhotra & Moorthy, Bull. Bot. Surv. India 13: 310. 1971; Mold., Fifth Summ. 1: 278 & 369 (1971) and 2: 844. 1971; Gamble, Man. Indian Timb., ed. 2, imp. 3, 545. 1972; Talbot, Forest Fl. Bomb., ed. 2, 2: 360 & 361. 1976; Mold., Phytologia 36: 37 (1977) and 45: 54. 1980.

Illustrations: Wight, Icon. Pl. Ind. Orient. 2: pl. 363. 1840; Wight, Illustr. Ind. Bot. 2: pl. 173 bis. 1850; Munir, Gard. Bull. Singapore 22: 169, fig. 4. 1967.

This species is based on *Wight 2304*, probably collected at Balaghat, Madhya Pradesh, India, and deposited in the Kew herbarium. Talbot (1949) says of the species that it "Takes the place of *S. involucreatum* in the dry zone. A climbing or spreading shrub". He goes on to say that it occurs in the "Hills of the South Deccan peninsula northwards to Belgaum: Belgaum and Dharwar districts in dry open situations, also in deciduous monsoon-forest; a somewhat rare species. Flowers profusely during Feb.--Mch. when it is bare of leaves. Bark grey, shining, lenticellate. Wood grey, soft." Voigt (1845) lists it as cultivated in Calcutta. Prain (1963) refers to it as a "large climber" in Chota Nagpur and Orissa. Patel (1968) calls it "a large scrambling shrub", growing in dry ravines in Bombay.

Nairne (1894) tells us that *S. polyandrum* is like *S. involucreatum* "but larger in all its parts and more hairy; leaves up to 9 inches long." The *Herb. Hort. Bot. Calcut. s.n.* specimen in the Munich herbarium, cited below, exhibits well the large, coarsely dentate leaves normally found on sterile branches. A note appended to the Buitenzorg sheet suggests that the broadly ovate serrate leaves on a separate twig do not belong with the flowers, but it is my belief that they do. They measure 15 cm. in length and 11.5 cm. in width, are basally truncate or subtruncate, apically short-acuminate, coarsely dentate from the apex almost to the base, and densely pubescent beneath, slightly less so above.

Other authors distinguish the two species as follows: In *S. involucreatum* the leaves are thin-textured, entire-margined or only slightly toothed, the flowers are small, about 1/2 inch long, the corolla is 1/4 inch long, 6--8-lobed, the bracts are linear-spatulate, membranous, and the stamens few, 6--9. In *S. polyandrum* the leaves are leathery, marginally deeply repand or toothed, the flow-

ers larger, 1 inch long, the corolla 1/2 inch long, 12--16-lobed, the bracts broadly obovate, and the stamens many, 12--18.

It should be mentioned here that the Wight (1840) reference in the bibliography of this species is often cited as "1840-43", but the page and plate involved here seem actually to have been issued in 1840. Munir (1967) inaccurately cites the Briquet (1895) reference as "1897". He cites the Cooke (1906) reference as "II (1908)" and the Haines (1922) reference as "3 (1922) 728. This Cooke reference is also sometimes cited as "3: 435", the Talbot (1909) reference as "1911", and the Gamble (1924) reference as "2: 1104", the pages in volume 2 being continuous.

Clarke (1885) cites for *S. polyandrum* only "Wight, Beddome, &c". Cooke (1906) cites *Ritchie* 925, *Talbot s.n.*, and *Woodrow s.n.* Malhotra & Moorthy (1974) cite their nos. 134917, 134993, 135092, 135264, & 135308. Munir (1967) cites the following collections: INDIA: Andhra Pradesh: *Beddome* 40, 6512, 6513, 6514, 6515, 6516, 8181, & *s.n.*; *Collector undetermined s.n.*; *Gamble* 10932. Bihar & Orissa: *Gamble* 9149; *Herb. Econ. Pl. Surv.* 677; *Haines* 109. Madhya Pradesh: *Wight* 2304. Madras: *Perrottet* 326, 410, & 530. Maharashtra: *Ritchie* 925 & *s.n.* Mysore: *Talbot* 362. Uttar Pradesh: *Dowitt* 1; *Marten s.n.*; *Ramrao* 1370. CULTIVATED: India: *Herb. Hort. Bot. Calcutt. s.n.*; *Kew Distribution* 6007; *Kurz* 56 & *s.n.*; *Wallich* 1740.

Citations: INDIA: Madhya Pradesh: *Wight s.n.* (Pd). Maharashtra: *Ritchie s.n.* (N). Tamil Nadu: *Perrottet* 410 (Mu--1185). CULTIVATED: India: *Herb. Hort. Bot. Calcutt. s.n.* (Ez--23502, Mu--1066, Mu--1167); *Kurz* 56 (Pd); *Voigt s.n.* [H. B. Serampore] (Cp, Cp, Cp, Cp, E--photo, N--photo, Z--photo).



Moldenke, Harold N. 1980. "Notes on the genus *Sphenodesme*. *Phytologia* 46: 43-58. Mai 1980. MOLDENKE, HAROLD N. Notes on the genus *Symphorema*." *Phytologia* 45(5), 396-414.

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