

## ADDITIONAL NOTES ON THE GENUS *SPHENODESME*. II

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### *SPHENODESME* Jack

Additional bibliography: A. L. Juss. in Orbigny, Dict. Univ. Hist. Nat. 13: 185. 1849; Pfeiffer, Nom. Bot. 2 (2): 1569 & 1593. 1874; Mold., Phytologia 46: 121--134. 1980.

### *SPHENODESME PENTANDRA* Jack

Additional bibliography: Mold., Phytologia 46: 124 & 127--134. 1980.

Munir (1966) cites also the following collections: MALAYA: Pahang: Ridley 2160; Seimund 14, 275; Walker 23324. Penang: Curtis 269; Jack s.n.; Wallich 1735, 1735/1. Perak: Burkill & Haniff 12524; Kunstler 4532. Singapore: Hullett 520; Ridley 2793, 14187. Trengganu: Corner s.n. Wellesley: Ridley 9391. VIETNAM: Annam: Alleizette s.n.; Harmand s.n.; Poilane 5630. Cochinchina: Pierre 70, 1095; Thorel 649. Laos: Poilane 16264, s.n. GREATER SUNDA ISLANDS: Sabah: Cuadra 152. Kalimantan: Kostermans 13542.

Material of *S. pentandra* has been misidentified and distributed in some herbaria as *S. wallichiana* Schau., *Analectis* sp., *Congea pentandra* Wall., *Roscoea* sp., *Peronema* sp., *Petraea* sp., and even *Hiptage* sp. (in the *Malpighiaceae*). On the other hand, the Chun 984 & 1090, Collector undetermined 420, DeSilva s.n., Griffith 6009, Herb Lingnan Univ. 17057, Herb. Univ. Nanking 4609 & 6469, King's Collector s.n. [Dimapur, 23 March 1896], Lau 1213 & 3439, Lei 438 & 439, Liang 61598 & 65082, Symington & Kiah 28773, Tak 308, Tsang 308, Voigt s.n., Wallich 1734, and Wight s.n., distributed as typical *S. pentandra*, are var. *wallichiana* (Schau.) Munir, while Henry 13225 is *S. mollis* Craib and Puasa s.n. [D. D. Wood 1935] is *S. triflora* Wight.

Citations: INDIA: Assam: Koelz 29769 (Mi). THAILAND: Collins 358 (W--1700524), 1388 (W--1701188), 1415 (W--17012009), 1969 (W--1701595); Hansen & Smitinand 12157 (Cp, Ld); Larsen 33287 (Ac, Ld); Maxwell 71-217 (Ac), 74-10 (Ac), 76-26 (Ac); Pholenchit 1543 [Herb. Roy. Forest Dept. 22990] (Mi); Sangkhachand 581 [Herb. Roy. Forest Dept. 14391] (Z); Smitinand 2200 [Herb. Roy. Forest Dept. 17309] (Sm). VIETNAM: Cochinchina: Lefevre 116 (B); Pierre 70 (B, Ca--53729, S, S), 1095 (N, N, W--1757957, W--2602520); Thorel 649 (Ca--54676). Laos: Poilane s.n. [Arboretum de Trangleom, 1923] (N). MALAYA: Malacca: Griffith s.n. [Malacca, 1845] (Br, Bz--23042, F--photo, N, N--photo, Pd, Si--photo, Z--photo). Penang: Collector undetermined s.n. [Pulau Penang] (Bz--23044); C. Curtis 269 (Pd); W. Fox s.n. (Bz--23043); Guard 2 (Bz--23045); Wallich 1735 (M, Mu-1454, Pd), 1735/1 (Pd). Singapore: Goodenough s.n. [Changi, July 27th, 1889] (Ca--267601). CULTIVATED: India: Herb. Drake s.n. [hort. bot. Calcut.] (W--2497158); Herb. Hort. Bot. Calcut. s.n. (Bz--23047, Bz--23048).

*SPHENODESME PENTANDRA* var. *WALLICHIANA* (Schau.) Munir, Gard. Bull. Singapore 21: 360. 1966.

Synonymy: *Roscoea pentandra* Roxb., Cat. Hort. Beng. 46, nom. nud. 1814; Fl. Ind., ed. 2, imp. 1, 3: 54. 1832. *Congea pentandra* Wall., Numer. List [47], no. 1734. 1829; Voigt, Hort. Suburb. Calc. 469. 1845. *Congea pentandra* (Roxb.) Wall., Numer. List [47], no. 1734. 1829; Walp., Repert. Bot. Syst. 4: 117. 1848. *Congea jackiana* var. *attenuata* Wall., Numer. List [47], no. 1735/2, hyponym. 1829. *Sphaenodesma wallichiana* Schau. in A. DC., Prodr. 11: 622. 1847. *Sphenodesma pentandra* (Roxb.) W. Griff., Notul. Pl. Asiat. 4: 176. 1854. *Sphenodesme wallichiana* Schau. apud Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 2: 961, in syn. 1895. *Sphenodesma wallichiana* Schau. apud H. J. Lam in Lam & Bakh., Bull. Jard. Bot. Buitenz., ser. 3, 3: 99 & xvi. 1921. *Sphenodesme pentandra* var. *oblonga* Kuntze ex Mold., Résumé Suppl. 3: 17, nom. nud. 1962. *Sphenodesme pentandra* (Roxb.) W. Griff. apud Munir, Gard. Bull. Singapore 21: 360, in syn. [not *S. pentandra* Jack, 1820]. *Sphenodesme pentandra* "Jack sensu Clarke" apud Munir, Gard. Bull. Singapore 21: 360, in syn. 1966. *Sphenodesme griffithiana* Schau., in herb. [not *S. griffithiana* Wight, 1849].

Bibliography: Roxb., Hort. Beng. 46. 1814; Wall., Numer. List [47], nos. 1734 & 1735/2. 1829; Roxb., Fl. Ind., ed. 2, imp. 1 [Carey], 3: 54. 1832; Voigt, Hort. Suburb. Calc. 469. 1845; Walp., Repert. Bot. Syst. 4: 117. 1845; Schau. in A. DC., Prodr. 11: 622 & 624. 1847; Wight, Icon. Pl. Ind. Orient. 4 (3): 14, pl. 1475. 1849; W. Griff., Notul. Pl. Asiat. 4: 176. 1854; Buek, Gen. Spec. Syn. Candoll. 3: 110 & 443. 1858; Gamble, Man. Indian Timb., ed. 1, 282. 1881; C. B. Clarke in Hook. f., Fl. Brit. India 4: 602. 1885; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 1: 595 (1893) and imp. 1, 2: 961. 1895; King & Gamble, Journ. Asiat. Soc. Beng. 74 (4): 863. 1909; Craib, Kew Bull. Misc. Inf. 1911: 445. 1911; Dop, Bull. Soc. Bot. France 61: 319. 1915; H. J. Lam, Verbenac. Malay. Arch. 335--336. 1919; Bakh. in Lam & Bakh., Bull. Jard. Bot. Buitenz., ser. 3, 3: x. 1921; H. J. Lam in Lam & Bakh., Bull. Jard. Bot. Buitenz., ser. 3, 3: 99 & xvi. 1921; E. D. Merr., Bibl. Enum. Born. Pl. 518. 1921; Ridl., Fl. Malay Penins. 2: 639. 1923; Stapf, Ind. Lond. 6: 181. 1931; Dop in Lecomte, Fl. Gén. Indo-chine 4: 904--906. 1936; Fletcher, Kew Bull. Misc. Inf. 1938: 442--443. 1938; Kanjilal & Das in De, Fl. Assam 495, 496, & 558. 1939; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 1: 595 (1946) and imp. 2, 2: 961. 1946; H. N. & A. L., Mold., Pl. Life 2: 88. 1948; Mold., Résumé 345. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 3, 1: 595 (1960) and imp. 3, 2: 961. 1960; Mold., Résumé Suppl. 3: 17. 1962; Munir, Gard. Bull. Singapore 21: 315, 318, 319, 323, 325, 330, 360--363, 373, & 375--378, map 4, pl. 13. 1966; Mold., Résumé Suppl. 15: 8--11, 15, 19, 22, & 23. 1967; Munir, Biol. Abstr. 48: 4097. 1967; Mold., Fifth Summ. 1: 269, 278, 284, 285, 290, 292, 302, 306, 368, & 468 (1971) and 2: 618, 623--625, & 844. 1971; Mold., Phytologia 23: 423 (1972), 28: 451 (1974), 36: 38 (1977), 45: 54 (1980), and 46: 57, 124, & 133. 1980.

Illustrations: Wight, Icon. Pl. Ind. Orient. 4 (3): pl. 1475. 1849; Munir, Gard. Bull. Singapore 21: [361], pl. 13. 1966.

A scandent shrub; branches dark-brown, obscurely tetragonal, puberulous when young, finally glabrous, lenticellate; petioles 5--15 mm. long, pubescent when young, longitudinally canaliculate above, curved; leaf-blades chartaceous or subcoriaceous, elliptic-oblong to lanceolate-oblong, 5--18 cm. long, 3--7 cm. wide, apically acuminate-acute and often mucronulate, basally cuneate or subrotund, glabrous and shiny above, dull beneath and glabrous except for the somewhat hairy midrib and the axils of the 4--6 pairs of secondary veins; inflorescence axillary and terminal, puberulous, the panicles 16--37.5 cm. long, the rachis pubescent when young, later glabrous except for the ciliate nodes; cymes 7-flowered; peduncles 1.5--3 cm. long; involucre bracts oblong-spatulate, 1.5--2.8 cm. long, 5--10 mm. wide, apically obtuse, glabrous; calyx very shortly and obscurely 5-lobed or subtruncate, glabrous on both surfaces, the 5 accessory teeth minute even after anthesis; corolla 5-lobed, tubular or infundicular, the tube 5 mm. long, externally glabrous, internally densely villous on the upper third, glabrous below, the lobes somewhat rounded apically, patent, glabrous; stamens 5, exserted; filaments slender; style about 5 mm. long, slender, exserted; stigma shortly bifid; fruit globular, about 4 mm. long and wide, setose.

This variety is native from Assam to Bangladesh, Burma, the Nicobar Islands, Malaya, and Indochina, north to Hainan island and southern China; cultivated in India, Pakistan, Sri Lanka, and probably elsewhere. It is based on *Wallich* 1734 from Silhet, Bangladesh, deposited in the DeCandolle Herbarium at Geneva, Switzerland. *Sphenodesme pentandra* var. *oblonga* is based on *Kuntze s.n.*, collected in "Hinter Indien" in March, 1875, and deposited in the Britton Herbarium at the New York Botanical Garden. Thus far, I have been unable to find where, if ever, Kuntze published this trinomial, but the type specimen's label is inscribed in his hand: "bracteae oblongae obtusae".

Recent collectors describe *S. pentandra* var. *wallichiana* as a woody climber or scandent vine, climbing into tall trees, or erect, 3 m. long, the stems 3 cm. in diameter, the leaves light-green above and pale-green beneath, the flowers fragrant, and the fruit green and winged. They have encountered it on dry land, in the dense shade of mixed woods, and on the margins of streams, at 400--500 feet altitude, in flower in March and April, and in fruit in February and May. The "flowers" [=corollas? bracts?] are described as "blue" on *Lei* 439 and "green" on *Liang* 61598. *Lei* reports the plant "fairly common" in sandy soil of thickets on dry level land of village commons on Hainan island, but "rare" on dry gentle slopes. Voigt (1845) reports it cultivated in Calcutta.

Vernacular names reported for the variety are "arkeng-ke-et", "baking-rap-rikang", and "tukha-karaizig".

Griffith (1854) listed *Roscoeia pentandra* Roxb. as a synonym of his *Decadontia coerulescens* W. Griff., which, however, is now regarded as a synonym of *Sphenodesme griffithiana* Wight.

Munir (1966) cites the following collections: INDIA: Assam: *Alleizette* 5722; *Griffith* 6009; *McLelland* s.n.; *Watt* 6731, 11811. NICOBAR ISLANDS: *Kamphoevener* 2020, 2025. BANGLADESH: *Collector undetermined* s.n.; *DeSilva* s.n. [Wallich 1734]; *Gower* s.n.; *Roxburgh* 1823; *Wight* s.n. BURMA: *Cubitt* 354; *Lace* 5165; *MacGregor* 700, 2516; *Mya* 2297. CHINA: Hunan: *Forrest* 9837, 13617. CHINESE COASTAL ISLANDS: Hainan: *Ford* 420; *Lau* 1213, 3439, 5416; *Lei* 439; *Liang* 61598, 65082; *Tsang* 308. MALAYA: Pahang: *Symington & Kiah* 28773. VIETNAM: Annam: *Pierre* 116; *Poilane* 1209. Laos: *Poilane* 13680. CULTIVATED: India: *Voigt* 1674, 2115, 2911, s.n.; *Wallich* 1735/2.

Material of *Sphenodesme pentandra* var. *wallichiana* has been misidentified and distributed in some herbaria as *S. acuminata* Wight, *S. griffithiana* Schau., *S. jackiana* Schau., *S. pentandra* Jack, and *Congea* sp.

Citations: INDIA: Assam: *W. Griffith* 6009 (Mu--1055, Mu--1056, Pd, S); *King's Collector* s.n. [Dimapur, 23 March 1896] (W--325402); *Kuntze* s.n. [Hinter Indien, III.75] (N). BANGLADESH: *De Silva* s.n. [Wallich 1734] (M, Mu--1455, S); *Helper* 120 (Mu--120). CHINESE COASTAL ISLANDS: Hainan: *Chun* 984 [Herb. Univ. Nanking 6406] (Ca--239919, W--1346088), 1090 [Herb. Univ. Nanking 6469] (Ca--239977, W--1346089); *Ford* 420 (Ph); *Lau* 1213 (N), 3439 (Bi, S); *Lei* 439 (B, Ba, Bz--23049, Ca--611353, N, W--1754095); *Liang* 61598 (B, N, W--1669696), 65082 (N, S); *Tsang* 308 [Herb. Lingnan Univ. 17057] (B, Bz--23050, Ca--13861, Ca--356901, N, W--1659660, Z). BURMA: Tenasserim: *Helper* 6008 (Mu--1057). VIETNAM: Annam: *Poilane* 1209 (B). MALAYA: Pahang: *Symington & Kiah* 28773 (Bz--23041, N). CULTIVATED: India: *Herb. Hort. Bot. Calcutt.* s.n. (Mu--1062, Mu--1170, Mu--1456, Pd); *Voigt* 1674 (Cp, N--photo, Z--photo). Sri Lanka: *Collector undetermined* s.n. [R. B. G., Dec. 1859] (Pd). LOCALITY OF COLLECTION UNDETERMINED: *Collector undetermined* s.n. (Pd).

*SPHENODESME PIERREI* Dop, Bull. Soc. Bot. France 61: 317--318 [as "*Sphenodesma*"]. 1915; Prain, Ind. Kew. Suppl. 5, imp. 1, 248. 1921.

Synonymy: *Sphenodesma pierrei* Dop, Bull. Soc. Bot. France 61: 317. 1915.

Literature: Dop, Bull. Soc. Bot. France 61: 317--318. 1915; Prain, Ind. Kew. Suppl. 5, imp. 1, 248. 1921; Dop in Lecomte, Fl. Gén. Indo-chine 4: 899 & 906. 1936; Fedde & Schust, Justs Bot. Jahresber. 60 (2): 574. 1941; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 59 & 99. 1942; H. N. & A. L. Mold., Pl. Life 2: 76. 1948; Mold., Known Geogr. Distrib. Verbenac., ed. 2, 137 & 174. 1949; Mold., Résumé 176 & 439. 1959; Prain, Ind. Kew. Suppl. 5, imp. 2, 218. 1960; Munir, Gard. Bull. Singapore 21: 318, 325, 330, 354, [356], 357, & 373, pl. 11. 1966; Hocking, Excerpt. Bot. A.12: 425. 1967; Mold., Résumé Suppl. 15: 10. 1967; Munir, Biol. Abstr. 48: 4097. 1967; Mold., Fifth Summ. 1: 302 (1971) and 2: 844. 1971; Mold., Phytologia 46: 47. 1980.

Illustrations: Munir, Gard. Bull. Singapore 21: [356], pl. 11. 1966.

This species was based by Dop on an unnumbered Pierre collection from Monts-Ba, Tin-tinh, in Cochinchina [Vietnam] and *Harmant* 1098 from Sè-Kè-moun in Laos, but Munir (1966) has designated "*Pierre s.n. & No.70-P*" as the holotype.

Dop (1915) says that "*Cette espèce est voisine du *Sphenodesma Griffithiana* Wight; elle s'en distingue nettement par la forme des bractées de l'involucre*". Munir (1966) says that "This species is closely allied to *S. pentandra* but is easily distinguished by its leaves being fewer-nerved (2--3 each side), peduncle and calyx densely hirsute and involucre bracts broadly elliptic-obovate, ciliate towards the base". He cites only *Pierre s.n.* from Cochinchina.

*SPHENODESME RACEMOSA* (Presl) Mold., *Revist. Sudam. Bot.* 10: 230. 1956.

Synonymy: *Congea barbata* Wall., *Numer. List* [47], no. 1735, hyponym. 1829. *Viticastrum racemosum* Presl, *Bot. Bemerk.* 148. 1844. *Viticastrum ramosum* Presl apud Schau. in A. DC., *Prodr.* 11: 623, in syn. 1847. *Sphaenodesma barbata* (Wall.) Schau. in A. DC., *Prodr.* 11: 623. 1847. *Sphenodesme ferruginea* Wight, *Icon. Pl. Ind. Orient.* 4: 13, pl. 1474, in syn. 1850. *Sphaenodesma barbata* Schau. apud Miq., *Fl. Ned. Ind.* 2: 910. 1856. *Sphenodesma barbata* Schau. apud C. B. Clarke in Hook. f., *Fl. Brit. India* 4: 601. 1885. *Sphenodesma ferrugineum* Wight apud C. B. Clarke in Hook. f., *Fl. Brit. India* 4: 601, in syn. 1885. *Sphenodesme barbata* Schau. apud Jacks. in Hook. f. & Jacks., *Ind. Kew.*, imp. 1, 2: 961. 1895; *Sphenodesme borneensis* Merr., *Journ. Straits Br. Roy. Asiat. Soc.* 76: 114--115. 1917. *Sphenodesme winkleri* H. Hallier, *Meded. Rijks Herb. Leid.* 37: 86. 1918. *Sphenodesma ferruginea* Wight apud H. J. Lam in Lam & Bakh., *Bull. Jard. Bot. Buitenz.*, ser. 3, 3: 99. 1921. *Sphenodesma winkleri* H. Hallier apud H. J. Lam in Lam & Bakh., *Bull. Jard. Bot. Buitenz.*, ser. 3, 3: 99. 1921. *Sphenodesme borneensis* Merr. apud A. W. Hill, *Ind. Kew. Suppl.* 6: 198. 1926. *Sphenodesma borneënsis* Merr. ex Mold., *Suppl. List Inv. Names* 7, in syn. 1941. *Sphenodesme racemosa* var. *racemosa* [(Presl) Mold.] Munir, *Gard. Bull. Singapore* 21: 349. 1966.

Bibliography: Wall., *Numer. List* [47], no. 1738. 1829; D. Dietr., *Syn. Pl.* 3: 619. 1843; Presl, *Bot. Bemerk.* 148. 1844; Walp., *Repert. Bot. Syst.* 4: 117. 1845; Schau. in A. DC., *Prodr.* 11: 623 & 624. 1847; Walp., *Repert. Bot. Syst.* 6: 697. 1847; Wight, *Icon. Pl. Ind. Orient.* 4 (3): 13--14, pl. 1474. 1849; Wight, *Illust. Ind. Bot.* 217, pl. 173 bis. 1850; Miq., *Fl. Ned. Ind.* 2: 910. 1856; Buek, *Gen. Spec. Syn. Candoll.* 3: 110, 443, & 502. 1858; C. B. Clarke in Hook. f., *Fl. Brit. India* 4: 601--602. 1885; Jacks. in Hook. f. & Jacks., *Ind. Kew.*, imp. 1, 1: 595 (1893) and imp. 1, 2: 961. 1895; Briq. in *Engl. & Prantl, Nat. Pflanzenfam.*, ed. 1, 4 (3a): 181. 1895; King & Gamble, *Journ. Roy. Asiat. Soc. Beng.* 74 (2 extra): 860 & 862--863. 1908; Dop, *Bull. Soc. Bot. France* 61: 317. 1915; E. D. Merr., *Journ. Str. Settl. Br. Roy. Asiat. Soc.* 76: 114--115. 1917; H. Hallier, *Meded. Rijks Herb. Leid.* 37: 86. 1918; H. J. Lam, *Verbenac. Malay. Arch.* 333--334 & 368. 1919; Bakh. in Lam & Bakh., *Bull. Jard. Bot.*

Buitenz., ser. 3, 3: x. 1921; H. J. Lam in Lam & Bakh., Bull. Jard. Bot. Buitenz., ser. 3, 3: 99 & xvi. 1921; E. D. Merr., Bibl. Enum. Born. Pl. 518. 1921; Ridl., Fl. Malay. Penins. 638--639. 1923; A. W. Hill, Ind. Kew. Suppl. 6: 198. 1926; Fedde & Schust., Justs Bot. Jahresber. 47 (2): 246. 1929; E. D. Merr., Univ. Calif. Publ. Bot. 15: 266. 1929; Stapf, Ind. Lond. 6: 180. 1931; Mold., Suppl. List Comm. Names [1], 7, 9, & 13. 1940; Mold., Suppl. List Inv. Names 7. 1941; Mold., Alph. List Inv. Names 22 & 41. 1942; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 61, 65, & 99. 1942; Mold., Phytologia 26: 111--112. 1944; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 1: 595 (1946) and imp. 2, 2: 961. 1946; Mold., Alph. List Inv. Names Suppl. 1: 20. 1947; Mold., Known Geogr. Distrib. Verbenac., ed. 2, 139, 140, 145, 146, 173, & 174. 1949; Mold., Résumé 164, 181, 187, 192--194, 345, 391, & 439. 1959; Mold., Revist. Sudam. Bot. 10: 229--230. 1956; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 3, 1: 595 (1960) and imp. 3, 2: 961. 1960; Munir, Gard. Bull. Singapore 21: 318, 319, 325, 330, 347, 349--[353], 373, & 375--378, pl. 8. 1966; G. Taylor, Ind. Kew. Suppl. 13: 129. 1966; Mold., Résumé Suppl. 15: 11, 12, & 22. 1967; Munir, Biol. Abstr. 48: 4097. 1967; Mold. in Menninger, Flow. Vines 328. 1970; Farnsworth, Pharmacog. Titles 5: Cum. Gen. Index. 1971; Mold., Fifth Summ. 1: 278, 306, 327, & 468 (1971) and 2: 623--625, 731, & 844. 1971; Mold., Phytologia 23: 435 (1972), 45: 53 (1980), and 46: 47, 49, & 57. 1980.

Illustrations: Wight, Icon. Pl. Ind. Orient. 4 (3): pl. 1474. 1849; Munir, Gard. Bull. Singapore 21: [350], pl. 8. 1966.

Scandent woody vine or climbing shrub, to 8 m. tall; branches and branchlets slender, terete or somewhat tetragonal, lenticellate, reddish-brown, the younger branchlets densely ferruginous-pubescent with simple and somewhat appressed hairs, the older branches soon becoming quite glabrous; petioles 5--7 mm. long, not twisted, densely ferruginous-pubescent with simple hairs when young, glabrescent in age; leaf-blades chartaceous or coriaceous, olivaceous when dry, about the same color on both surfaces or slightly paler beneath, oblong or ovate, 4--14 cm. long, 1.8--5.5 cm. wide, shiny, apically conspicuously apiculate-acuminate or subobtusely acuminate, marginally entire, basally rounded or cuneate, glabrous or subglabrous above with a few long hairs, often more densely hairy on the veins, more or less densely ferruginous-tomentose beneath or more sparingly pubescent and soon glabrescent, often glandular and more densely tomentose on the venation; secondaries 3--7 per side, 2 larger pairs basal, 1 large pair at about the middle of the midrib, and 2--4 apical pairs, the basal pair usually leaving the midrib in the lower 2 cm., very prominent, curvate-ascending, anastomosing; veinlet reticulation prominent; inflorescence terminal, 10--15 cm. long, ferruginous-pubescent with simple hairs, the heads arranged in a simple raceme, sometimes supplied with reduced leaves or in a large panicle, all parts more or less ferruginous-pubescent; peduncles slender, 1--3 cm. long, shorter toward the tips of the branchlets; bracts 6, elliptic or spatulate-obovoid, accrescent, apically rounded, more

or less pubescent on both surfaces (especially on the venation and near the base), with a prominent midrib, the middle one of each set of three 1.9--2.2 cm. long and 8--10 mm. wide, the lateral ones 1.5--1.7 cm. long and 4--5 mm. wide; heads 5--7-flowered; calyx narrowly infundibular, about 4 mm. long, 10-ribbed, externally densely and conspicuously ferruginous-pubescent or -hirsute with long, spreading, glandular hairs, minutely pubescent on the inner surface, its rim 5-toothed, the teeth or lobes 1.5--2 mm. long, with 5 accessory episepalous teeth on the inner surface extending only slightly above the rim but opposite the elongated teeth, no intersepalous teeth present; corolla greenish-white or greenish-yellow, about 5 mm. long, the tube about as long as the calyx, externally glabrous, sparsely long-pilose in the throat, the 5 lobes oblong, about 2 mm. long, apically obtuse, externally pubescent, glabrous within; stamens 5, inserted in the corolla-throat, glabrous, exserted; mature style slender, slightly exserted, as long as the stamens; stigmas shortly bifid; ovary glabrous on the lower portion, glandular-villous on the upper portion; fruit small, drupaceous, embedded in the enlarged fruiting-calyx, ferruginous-villous, with a crustaceous exocarp, 1-seeded.

This species occurs naturally from Malaya to the Riouw and Lingga Archipelagos and Indonesia. *Sphenodesme borneensis* is said by Merrill to be recognized easily by its few-veined leaf-blades, its 5-flowered heads, its elliptic accrescent bracts, and its cleft calyx-teeth, but Munir (1966) feels that these characters do not distinguish it from typical *S. racemosa*.

Recent collectors refer to *S. racemosa* as a climber, forming "tough rigid tangled masses", the bark on the branches gray and smooth, the leaves "recurved", sublucid above, much paler beneath, brown-hairy, the "flowers" brown-hairy, and the fruit pale yellow-green. They have found it growing on forested ridges, at 50--100 m. altitude, in flower in June and October. The "flowers" [corollas?] are said to have been "yellowish-green" on *Elmer* 20838 and "greenish-yellow" on *Foxworthy* 450.

Farnsworth, in a letter to me dated March 1, 1971, reports that "Phytochemical screening indicated the presence of saponins, but triterpenes, sterols and alkaloids were absent" in this species. Merrill (1929) found the plant "Scandent on large trees in dense forests" in Penang, citing *Elmer* 20838. Munir (1966) has designated *Griffith s.n.*, from Malacca, deposited in the British Museum herbarium, as the holotype of *S. racemosa*.

*Sphenodesme winkleri* H. Hallier is based on *Winkler* 2314 from Hayup in southeastern Borneo.

It is worth noting that Munir (1966) incorrectly cites the Wight (1849) reference to *S. racemosa* as "1850", the Briquet (1895) reference as "1897", the Miquel (1856) reference as "1858", the King & Gamble (1908) reference as "1909", the Wallich (1829) reference as "1828", and the Walpers (1845) reference as "1844--48". The Dop (1915) reference is sometimes cited as "1914".

Common and vernacular names listed for the species include

"aga lumut", "akar chabana lima", "akar lumut", "akar mēruan", "five-points climber", "hulat", "lembu-lembu", "lilimbo", "sumpin", and "sumpīn".

Clarke (1885) cites only *Wallich s.n.* from Penang and *Griffith 6009* (in part) and *Maingay 1194* from Malacca. He notes that "Schauer.....doubtfully reduces here *Viticastrum racemosum*, Presl .....but the description does not fit in several points, inter alia in the 5-celled ovary". King & Gamble (1908) cite *Curtis s.n.*, *Phillips s.n.*, & *Wallich 1738* from Penang and *Griffith 6009 /2*, *Hervey s.n.*, and *Maingay 1194* from Malacca.

Lam (1919) cites only *Winkler 2314* from Borneo. Munir (1966) cites the following collections: MALAYA: Johore: *Curtis s.n.*, *Holttum 9410*, *Ridley s.n.* Kelantan: *Sow & Motan 94509*. Malacca: *Burkill 531*, *Derry 179*, *Harvey s.n.* Negri Sembilan: *Alvins 957*, *1745*, *2010*, *Burkill 3221*, *Nur s.n.* Pahang: *Abu 69625*, *Burkill & Haniff 16922*, *Kostermans 78672*, *Ridley 2159*, *Symington & Kiah 28777*. Penang: *Curtis s.n.*, *Porter s.n.* [*Wallich 1738*]. Wellesley: *Ridley s.n.* GREATER SUNDA ISLANDS: Borneo: *Winkler 2314*. Kalimantan: *Kostermans 7239*. Radja: *Bunnemeijer 7634*. Sarawak: *Beccari 1601*, *Foxworthy 450*, *Herb. Philip. Bur. Sci. 1847*.

The *Clemens & Clemens s.n.* [Aug. 1931], distributed as *S. racemosa*, actually is the type collection of *S. triflora* var. *montana* Munir, while *Clemens & Clemens s.n.* [Tenompok] is *S. triflora* Wight, *Elmer 20838* is the type collection of *S. racemosa* var. *sabahensis* Munir, and *Helper 43* is *S. griffithiana* Wight.

Citations: MALAYA: Johore: *Ahmad S.294* (Kl--13070); *Holttum 9410* (Bz--23037). Malacca: *W. Griffith s.n.* [Malacca, 1845] (Br, F--photo, N--photo, Si--photo, Z--photo). Negri Sembilan: *Nur s.n.* [Tampui, August 1915] (Bz--23040). Pahang: *Poore 894* (Kl, Kl). Penang: *Porter s.n.* [*Wallich 1738*] (Pd). GREATER SUNDA ISLANDS: Bakong: *Bunnemeijer 7609* (Bz--23032, Bz--23033, Bz--23034). Borneo: *Winkler 2314* (Bz--23031, N). Radjai: *Bunnemeijer 7634* (Bz--23035, Bz--23036, N). Sarawak: *Foxworthy 450* (Ph); *Native collector 4847* (N--photo, Ph, Z--photo).

*SPHENODESME RACEMOSA* var. *SABAHENSIS* Munir, Gard. Bull. Singapore 21: 352--[353], pl. 9. 1966.

Bibliography: Munir, Gard. Bull. Singapore 21: 319, 325, 330, 352--[353], & 373, pl. 9. 1966; Mold., Résumé Suppl. 15: 12. 1967; Munir, Biol. Abstr. 48: 4097. 1967; Mold., Fifth Summ. 1: 327 (1971) and 2: 844. 1971.

Illustrations: Munir, Gard. Bull. Singapore 21: [353], pl. 9. 1966.

This variety differs from the typical form of the species in its calyx being densely appressed-pilose on both surfaces and the corolla having a much narrower villous ring in the throat.

The variety is based on *Elmer 20838* from Sabah, deposited in the Singapore herbarium. It is the only collection cited by Munir (1966).

Recent collectors refer to the plant as a climber, 10 feet tall, with greenish-yellow "flowers", and have encountered it in flat-

land logging areas, flowering in August. Material has been misidentified and distributed in some herbaria as *S. barbata* Schau.

Citations: GREATER SUNDA ISLANDS: Sabah: *Elmer* 20838 (Bi-isotype, Br-isotype, Ca--312131-isotype, Du--165045-isotype, Mu-isotype, N-isotype, S-isotype, Ut--84712-isotype, W--2605681-isotype, Z-isotype); *Krispinus* SAN.87306 (Sn--55106).

*SPHENODESME SARAWAKENSIS* Mold., *Revist. Sudam. Bot.* 10: 230--231. 1956.

Bibliography: Mold., *Revist. Sudam. Bot.* 10: 230--231. 1956; Mold., *Résumé* 193 & 439. 1959; Munir, *Gard. Bull. Singapore* 21: 316, 318, 319, 325, 330, 347--349, 373, & 377, pl. 7. 1966; G. Taylor, *Ind. Kew. Suppl.* 13: 129. 1966; Munir, *Biol. Abstr.* 48: 4097. 1967; Mold., *Fifth Summ.* 1: 327 (1971) and 2: 844. 1971; Mold., *Phytologia* 46: 47. 1980.

Illustrations: Munir, *Gard. Bull. Singapore* 21: [348], pl. 7. 1966.

This species is based on *Native Collector* 5227 from Sampadi Hill, Sarawak, deposited in the Britton Herbarium at the New York Botanical Garden. Munir (1966) notes that the species is "Akin to *S. racemosa* in having [a] 10-ribbed calyx with deeply 2-fid and inflexed lobes and well developed aristate accessory teeth, but differs in its branchlets, leaves, and involucre bracts being always glabrous, cymes 5-flowered, calyx obscurely pubescent without, accessory teeth alternating with the calyx lobes and ovary setulose all over". He cites only *Native Collector* 5111 & 5191 from Sarawak.

Recent collectors refer to the species as a climber, 3--10 m. tall, with green "flowers", and have encountered it in old jungles, at 155--750 m. altitude. Material has been misidentified and distributed in some herbaria as *S. stellata* Merr.

Citations: GREATER SUNDA ISLANDS: Sarawak: *Native Collector* 5111 (Ca--357592, N), 5191 (Ca--357206, N), 5227 (Ca--357650--isotype, N--type).

*SPHENODESME STELLATA* Merr., *Univ. Calif. Publ. Bot.* 15: 266--267. 1929.

Bibliography: E. D. Merr., *Univ. Calif. Publ. Bot.* 15: 266--267. 1929; A. W. Hill, *Ind. Kew. Suppl.* 8: 227. 1933; Fedde & Schust., *Justs Bot. Jahresber.* 59 (2): 417. 1939; A. W. Hill, *Ind. Kew. Suppl.* 8: 227. 1933; Mold., *Known Geogr. Distrib. Verbenac.*, ed. 1, 65 & 99 (1942) and ed. 2, 145, 146, & 174. 1949; Mold., *Résumé* 192 & 439. 1959; Munir, *Gard. Bull. Singapore* 21: 319, 325, 329, 367, [368], 373, 375, & 377, pl. 15. 1966; Munir, *Biol. Abstr.* 48: 4097. 1967; Mold., *Fifth Summ.* 1: 327 (1971) and 2: 844. 1971; Mold., *Phytologia* 46: 47. 1980.

Illustrations: Munir, *Gard. Bull. Singapore* 21: [368], pl. 15. 1966.

A scandent shrub or liana, forming tangled masses, loosely branched; branches terete, pale, glabrous; branchlets very slender, obscurely tetragonal, 2--2.5 mm. in diameter, lenticellate, more

or less plumose- or stellate-pubescent; petioles about 1 cm. long, canaliculate above, stellate-pubescent; leaf-blades chartaceous or subcoriaceous, elliptic or subelliptic, 9--14 cm. long, 5.5--8 cm. wide, abruptly and obtusely short-acuminate at the apex, marginally entire, basally acute, glabrous and shiny above and castaneous-olivaceous in drying, scarcely glandulose beneath, more or less stellate- or plumose-tomentose along the midrib and larger veins beneath and brunneous in drying; secondaries slender, 5 or 6 per side, distinct, curvate, arcuate-anastomosing; veinlet reticulation slender and distinct; inflorescence erect or ascending, sulphur-yellow throughout, axillary and terminal, densely stellate-pubescent throughout, the indument subferruginous with more or less plumose hairs; rachids few, elongate, 15--20 cm. long, the branches short, 1--1.5 cm. long; cauline bracts opposite, obovate or obovate-elliptic, 5--8 cm. long, short-stipitate, apically acute to rounded, pubescent; involucre bracts 6, oblanceolate to oblong-ob lanceolate, about 2.2 cm. long and 8 mm. wide, apically narrowed, basally cuneate, 3-veined, when young very densely stellate-pubescent on both surfaces; heads 7-flowered; flowers sessile; calyx about 4 mm. long during anthesis, scarcely costate, very densely stellate-pubescent on the outside with in-canous hairs, appressed-villous on the inner surface, its rim equally 5-toothed, not bilabiate, the teeth ovate, about 1.5 mm. long, apically acute, without accessory teeth in the sinuses; fruit ovoid, about 4 mm. long, glabrous.

This endemic Sabah species is based on *Elmer* 21631 from Tawao and is deposited in the Philippine National Herbarium in Manila, now probably destroyed. Merrill (1929) comments that "In the specimen examined the corollas have all fallen", but he judged the species to be allied to "*Sphenodesme microstylis* Clarke (*S. ferruginea* Briq., non Wight), this judgement being based on Gamble's ample description of the latter. The Bornean specimen differs in its leaves being entirely glabrous on the upper surface; in its different venation; in its apparently shorter inflorescences and peduncles; and in the equally lobed, not 2-lipped calyces". Munir (1966), however, was able to study a young flower on an isotype and says that "It is obvious that this species cannot be placed near *S. ferruginea* (Griff.) Briq. of the *Brachynema* section which is characterized by included stamens and style; which are exsert in *S. stellata*". He cites only *Elmer* 21631 and *Puasa* 4749 from Sabah.

Collectors describe the plant as a climbing shrub, 8--10 feet tall, or as a liana or woody climber, 6.5--26 m. long, "girth 2 1/2 feet", bark pale-brown, inner bark soft, pinkish, sapwood white to pale-yellow, branchlets rather lax, gray, smooth, forming tangled masses, leaves flat, "descending", yellowish-green, sub-lucid above, a trifle paler beneath, glabrous, inflorescence ascending or erect, "sulphur-yellow throughout", fruit greenish. They have found it growing in silty, reddish-brown, probably ultrabasic soil, brown sandy soil, red-brown or dark red-brown soil of roadsides, in low undulating country, on hillsides and hilltops

in otherwise flat land, in primary forests, along small streams in dense damp forests, in recent cuts through primary forests, and in logged-over areas on flat land, at altitudes of 25--700 feet, in flower in December, April, June, and July, in fruit in August.

The "flowers" [corollas?] are said to have been "white" on *Sadaw* 50493, "pale-gray" on *Sinanggul* 54643, "green" on *Ampuria* 40828, "yellow-green" on *Dewol & Karim* 77818, "yellowish-green" on *Krispinus* 87215, "greenish to purplish" on *Dewol & al.* 71186, and "pale-gray to pale-red" on *Sinanggul* 56989.

Material of *S. stellata* has been misidentified and distributed in some herbaria as *Petraeovitex* sp. On the other hand, the *Bakar* SAN.17325, distributed as *S. stellata*, actually is *S. involuocrata* (Presl) B. L. Robinson, while *Gibot* SAN.54849 and *Talip* SAN.54925 & SAN.68320 are *S. triflora* var. *montana* Munir.

Citations: GREATER SUNDA ISLANDS: Sabah: *Ampuria* SAN.40828 (N); *Dewol & Karim* SAN.77818 (Sn--42137); *Dewol, Leopold, & Shea* SAN.71186 (Ld); *Elmer* 21631 (Ca--312139-isotype, Du--161052-isotype, Mu--isotype, N--isotype, N--photo of isotype, Z--isotype, Z--photo of isotype); *Krispinus* SAN.87215 (Sn--54605); *Momin* SAN.80141 (Sn--41683); *Sadaw* SAN.50493 (Sn--40720); *Sinanggul* SAN.54643 (Ld), SAN.56989 (Z); *Singh & Abanag* SAN.30095 (Z).

*SPHENODESME THORELII* Dop, Bull. Soc. Bot. France 61: [316]--317 (as "*Sphenodesma*"). 1915.

Synonymy: *Sphenodesma thorelii* Dop, Bull. Soc. Bot. France 61: [316]. 1915. *Sphenodesme thorelli* Munir, Biol. Abstr. 48: 4097, sphalm. 1967. *Sphenodesme thorelli* Dop ex Mold., Résumé Suppl. 16: 26, in syn. 1968.

Bibliography: Dop, Bull. Soc. Bot. France 61: [316]--317. 1915; Prain, Ind. Kew. Suppl. 5, imp. 1, 248. 1921; Dop in Lecomte, Fl. Gén. Indo-chine 4: 897, 899, 902--903, & 909, fig. 93 (6--8) & 94 (1 & 2). 1936; Fedde & Schust., Justs Bot. Jahresber. 60 (2): 574. 1941; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 59, 65, & 99. 1942; H. N. & A. L. Mold., Pl. Life 2: 86. 1948; Mold., Known Geogr. Distrib. Verbenac., ed. 2, 137 & 174. 1949; Mold., Résumé 177 & 439. 1959; Prain, Ind. Kew. Suppl. 5, imp. 2, 248. 1960; Munir, Gard. Bull. Singapore 21: 319, 325, 329, 364--[365], 373, & 378, pl. 14. 1966; Munir, Biol. Abstr. 48: 4097. 1967; Mold., Résumé Suppl. 15: 10, 11, & 23 (1967) and 16: 26. 1968; Mold., Fifth Summ. 1: 302 (1971) and 2: 624 & 844. 1971; Mold., Phytologia 46: 47. 1980.

Illustrations: Dop in Lecomte, Fl. Gén. Indo-chine 4: 897 & 909, fig. 93 (6--8) & 94 (1 & 2). 1936; Munir, Gard. Bull. Singapore 21: [365]. 1966.

Dop (1915) cites *Pierre s.n.*, *Talmy s.n.*, and *Thorel 1385* from Cochinchina [Vietnam] and Munir (1966) has designated *Thorel 1385* as the holotype. He also regards Dop's var. *cordifolia* as not worth maintaining, in which I disagree. He comments that "Of the three taxa with 5-flowered cymes, *S. thorelii* is readily distinguished by its panicles being congested and hirsute, leaves more or less cordulate at the base, calyx hirsute and mid corolla-lobe

slightly longer and villous towards base". He cites only *Thorel* 1385.

*SPHENODESME THORELII* var. *CORDIFOLIA* Dop, Bull. Soc. Bot. France 61: 317 (as "*Sphenodesma*"). 1915; Munir, Gard. Bull. Singapore 21: 364. 1966.

Synonymy: *Sphenodesma thorelii* var. *cordifolia* Dop, Bull. Soc. Bot. France 61: 317. 1915. *Sphenodesme thorelii* var. *cordata* Dop ex Mold., Known Geogr. Distrib. Verbenac., ed. 1, 59 & 99, sphalm. 1942.

Bibliography: Dop, Bull. Soc. Bot. France 61: 317. 1915; Dop in Lecomte, Fl. Gén. Indo-chine 4: 903. 1936; Fedde & Schust., Justs Bot. Jahresber. 60 (2): 574. 1941; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 59 & 99 (1942) and ed. 2, 137 & 174. 1949; Mold., Résumé 177 & 439. 1959; Munir, Gard. Bull. Singapore 21: 325 & 364. 1966; Mold., Résumé Suppl. 15: 10, 11, & 23. 1967; Munir, Biol. Abstr. 48: 4097. 1967; Mold., Fifth Summ. 1: 302 (1971) and 2: 624 & 844. 1971.

This variety is said by Dop (1915) to differ from the typical form of the species in "*Folia subcordata vel cordata, apice obtusa, 5 cm longa et 3,5 cm lata*" and bases it on *Talmy s.n.* from Cochinchina [Vietnam]. Munir (1966), apparently without seeing the type collection arbitrarily reduces it to typical *S. thorelii* in whose description Dop has apparently included the varietal characters, as is, unfortunately, the all-too-common practice today.

*SPHENODESME TRIFLORA* Wight, Icon. Pl. Ind. Orient. 4 (3): 14, pl. 1478. 1849.

Synonymy: *Congea jackiana* Wall., Numer. List [47], no. 1735 (in part). 1829. *Sphenodesma triflora* W. Griff., Notul. Pl. Asiatic. 4: 182--183. 1854. *Sphaenodesma triflora* Wight apud Miq., Fl. Ned. Ind. 2: 910. 1856. *Sphenodesma triflora* Wight ex Briq. in Engl. & Prantl, Nat. Pflanzenfam., ed. 1, 4 (3a): 181. 1895. *Sphenodesme triflora* var. *triflora* [Wight] Munir, Gard. Bull. Singapore 21: 367. 1966. *Sphenodesme triflora* Griff. apud Munir, Gard. Bull. Singapore 21: 367, in syn. 1966. *Sphenodesma triflora* Wall., in herb.

Bibliography: Wall., Numer. List [47], no. 1735. 1829; Wight, Icon. Pl. Ind. Orient. 4 (3): 14, pl. 1478. 1849; W. Griff., Notul. Pl. Asiatic. 4: 182--183. 1854; Miq., Fl. Ind. Bat. 2: 910--911. 1856; Buek, Gen. Spec. Syn. Candoll. 3: 110. 1858; C. B. Clarke in Hook. f., Fl. Brit. India 4: 601. 1885; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 1: 595 (1893) and imp. 1, 2: 961. 1895; Briq. in Engl. & Prantl, Nat. Pflanzenfam., ed. 1, 4 (3a): 181. 1895; King & Gamble, Journ. Asiatic Soc. Beng. 74 (2 extra): 860--862. 1908; H. J. Lam, Verbenac. Malay. Arch. 332--333 & 368. 1919; Bakh. in Lam & Bakh., Bull. Jard. Bot. Buitenz., ser. 3, 3: x. 1921; H. J. Lam in Lam & Bakh., Bull. Jard. Bot. Buitenz., ser. 3, 3: 99 & xvi. 1921; Ridl., Fl. Malay Penins. 638. 1923; S. Moore, Journ. Bot. Lond. 63: Suppl. 81--82. 1925; Stapf, Ind.

Lond. 6: 181. 1931; Fletcher, Kew Bull. Misc. Inf. 1938: 405, 407, 441, & 442. 1938; Mold., Suppl. List Comm. Names [1] & 2. 1940; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 55, 60, 61, 63, 65, & 99. 1942; Mold., Phytologia 2: 112. 1944; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 1: 595 (1946) and imp. 2, 2: 961. 1946; Mold., Known Geogr. Distrib. Verbenac., ed. 2, 129, 138--140, 143, 146, & 174. 1947; Mold., Résumé 166, 178, 181, 188, 192--194, 345, & 439. 1959; G. Taylor, Ind. Kew. Suppl. 12: 134. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 3, 1: 595 (1960) and imp. 3, 2: 961. 1960; Munir, Gard. Bull. Singapore 21: 316, 319, 324, 325, 329, 367, [369]--373, & 375--378, map 5, pl. 16. 1966; Munir, Biol. Abstr. 48: 4097. 1967; Mold., Résumé Suppl. 15: 11, 12, 19, 22, & 23 (1967) and 16: 26. 1968; Anon., Torrey Bot. Club Ind. Am. Bot. Lit. 3: 309. 1969; Farnsworth, Pharmacog. Titles 5: Cum. Gen. Ind. 1971; Mold., Fifth Summ. 1: 284, 298, 306, 327, & 468 (1971) and 2: 623, 624, & 844. 1971; Mold., Phytologia 45: 54 & 469 (1980) and 46: 47 & 49. 1980.

Illustrations: Wight, Icon. Pl. Ind. Orient. 4 (3): pl. 1478. 1849; Munir, Gard. Bull. Singapore 21: [369], pl. 16. 1966.

A climbing, sometimes erect shrub or liana; branchlets minutely brownish-pubescent; petioles about 1 cm. long, brownish-pubescent; leaf-blades chartaceous, lanceolate or lanceolate-oblong, 7--13 cm. long, 2.8--5 cm. wide, apically acuminate, basally cuneate or subtruncate, glabrous on both surfaces; secondaries 4 per side; panicles very long, gray-pubescent, the lower branches in the axils of ordinary leaves, the upper ones in the axils of gradually smaller leaves or foliose bracts; cymes capitate, opposite, pedunculate; involucre bracts 2, each deeply 3-lobed, varying from purple or dull-purple to dull-red, 5--7 mm. long, 1--1.5 mm. wide, stipitate, 3-venose, in fruit 1.2--1.8 cm. long and 3.5--7.5 mm. wide; flowers 3 per head, one terminal and not subtended by a bract, the other 2 subtended by the involucre bracts; calyx dull-red, 4--5 mm. long, 2--2.5 mm. wide, externally densely gray-pubescent, inside with long antrorse hairs, its rim shortly 5-toothed, the teeth deltoid; corolla dark-purple, the tube 6 mm. long, externally glabrous, with a narrow ring of hairs at the throat within, the lobes 5, apically rounded, puberulous; stamens 5, inserted in the throat of the corolla-tube, exserted; filaments slender; style slender; stigma bifid; ovary glabrous; drupe pseudo-capsular, included in the enlarged, accrescent, ribbed fruiting-calyx, the exocarp leathery.

This species is based on *Griffith 6009/1* and *s.n.* from Verupha, Malacca, Malaysia, collected in 1845 and deposited in the Hooker Herbarium at the Royal Botanic Gardens, Kew. Munir (1966) includes *S. clemensorum* Mold. in the synonymy of the typical form of *S. triflora* Wight, but it is my belief that its differences from the type warrant at least varietal status. Griffith (1854) comments that "Although the involucre is generally small, yet the lower ones of some panicles here and there are as large as ordinarily happens, in all, the flowers are 3 only, and this is the only species in which there is no correspondence between the flowers and the involucre leaves, those being to these in all others equal plus one. The in-

florescence in this species is freely cymose, the lateral flowers in each of the dichotomes being wanting, we may hence expect 1-flowered pluri-involucrate inflorescences."

The species is distributed naturally in forests from Upper Burma and Thailand, through Malaya to Sumatra and Borneo.

Common and vernacular names reported for this species are "akar", "akar bisa", "akar bisar", "akar katup-katup", "akar memali", "akar pinang gusi", "akar risa", "akar sambu", "akar sempuleh", "aloor gagah", and "lipai".

It is perhaps noting here that some recent authors have misdated the Wight (1849) reference to this species as "1850", the Miquel (1856) reference as "1858", the Briquet (1895) reference as "1897", and the King & Gamble (1908) reference as "1909". According to Munir (1966) the *Griffith 6009/1* and *s.n.* collections cited below are actually one and the same collection, the type collection of the species.

Some authors cite the Moore (1925) reference to this species as having been authored by "Rendle" or by "S. Moore in Rendle", but according to the table of contents of the work in question the article was authored by Moore alone.

Recent collectors describe *Sphenodesme triflora* as a scrambler or as a twisting, twining, woody climber, 15--30 feet long, the stems 1/2 inch in girth, the bark black-brown, the "bracts etc." pale-green, and the fruit yellowish. They report finding it growing in primary forests, primary dipterocarp forests, logged-over areas on hillsides, low undulating country, and in loamy-sandy soil on ridges, at 200--350 feet altitude, in flower from May to August and in October and November, in fruit in August and September. Beusekom & Smitinand refer to it as "common" in Thailand. The "flowers" [corollas?] are said to have been "blue" on *Beusekom & Smitinand 2037*, "bluish-purple" on *Enggoh 7312*, "dark-purple" on *Poore 691*, "yellowish-red" on *Tarodop 83610*, and "pale-green" on *Lantoh 82390*.

Farnsworth, in a letter to me dated March 1, 1971, reports that phytochemical screening indicated the presence of triterpenes and sterols and the absence of saponins and alkaloids in this species.

Clarke (1885) cites *Griffith 6009* (in part) and *Maingay 1196* from Malacca and *Wallich s.n.* from Penang. King & Gamble (1908) cite *Ridley 11347* from Johore, *Derry 585*, *Griffith 6009/1*, and *Maingay 1196* from Malacca, *Curtis 210* from Penang, *King's Collector [Kunstler] 160, 1098, 1623, & 2474*, *Ridley 7598*, *Scortechini 1119*, and *Wray 683, 1383, & 1752* from Perak, *Ridley 12086 & 12088* from Selangor, *Deschamps s.n.* from Singapore, and *Forbes 3083* from Sumatra. Lam (1919) cites only *Forbes 3083* and *Herb. Lugd.-Bat. 908.141-21* from Java. Fletcher (1938) cites only *Fox s.n.* and *Kerr 7681* from Thailand, but noting that the species also occurs in Malacca and Sumatra.

Munir (1966) cites the following collections: THAILAND: *Kerr 7681*. MALAYA: Johore: *Holtum 9301, 19911*; *Ridley 11347, s.n.*; *Vesterdal 265*. Malacca: *Alvins 1719*; *Burkill 1156*; *Derry 35, 585*;

*Griffith 6009/1, s.n.*; *Holmberg 817, 832*; *Maingay 1196*; *Ridley s. n.* Negri Sembilan: *R.R.I.K. 16*. Pahang: *Abu 69628*; *Smith 93379*. Penang: *Curtis 210, s.n.* Perak: *Haniff 1257, 1264*; *Ridley 7598*; *Scortechini s.n.*; *Wray 1383*. Selangor: *Burkill 2546*; *Curtis s.n.*; *Jaamat 13809*; *Jaamat & Awang 18233*; *Jaamat & Osman 18235*; *Molesworth-Allen s.n.*; *Ridley 12086, 12088, 13371*; *Symington 21064, 23056*; *Umbai KL.1525*; *Watson 15366*. BRUNEI: *Jacob 39260*. SABAH: *Ampuria 40828*; *Enggoh 7312*; *Meijer 38796*; *Singh 39260*. SARAWAK: *Beccari 3885*; *Clemens & Clemens 5651*; *Haviland s.n.*; *Herb. Philip. Bur. Sci. 21781*.

Material of *S. triflora* has been misidentified and distributed in some herbaria as *S. pentandra* Jack, *S. stellata* Merr., *Clerodendron* sp., and *Petraeovitex* sp. On the other hand, the *Clemens & Clemens 5651* [Herb. Philip. Bur. Sci. 21781], regarded as typical *S. triflora* by Munir, is the type collection of var. *clemensorum* Mold.

Citations: KOH CHANG ISLAND: *Beusekom & Smitinand 2037 (Ac)*. MALAYA: Johore: *Holttum 9301 (Bz--23054)*. Malacca: *Burkill 1156 (Bz--23056)*; *W. Griffith 6009/1 (Mu--1059-isotype, Pd-isotype, S-isotype, T-isotype, Ut--32086-isotype, V-isotype), s.n.* [Malacca, 1845] (*Br-isotype, Br-isotype, Bz--23038-isotype, Bz--23039-isotype, F--photo of isotype, Mu--1058-isotype, Mu--1171-isotype, N-isotype, N-photo of isotype, Pd-isotype, Si-photo of isotype, W--2497342-isotype, Z-isotype, Z-photo of isotype*). Penang: *C. Curtis 210 (W--206478, W--206479)*. Perak: *Haniff 1264 (Bz--23055)*. Selangor: *Poore 691 (Kl--691)*. Trengganu: *Corner 30084 (Bz--23053)*. GREATER SUNDA ISLANDS: Sabah: *Clemens & Clemens 26154 (Bz--23028)*; *Enggoh 7312 (W--2188658)*; *Indar SAN.53319 (Z)*; *Lantoh SAN.82390 (Sn--49741)*; *Leopold, Gary, & DeWol SAN.74322 (Sn--40957)*; *Meijer SAN.38796 (Ld)*; *J. Singh SAN.39260 (Z)*. *SAN.53416 (Sn--40732)*; *Tarodop SAN.83610 (Sn--51492)*; *D. D. Wood 1935 (Bz--23052)*. Sumatra: *Buwalda 7142 (Bz--72611)*; *Kostermans 12058 (N)*.

*SPHENODESME TRIFLORA* var. *CLEMENSORUM* (Mold.) Mold., *Phytologia* 45: 469. 1980.

Synonymy: *Sphenodesme clemensorum* Mold., *Phytologia* 4: 368. 1953.

Bibliography: Mold., *Phytologia* 4: 368. 1953; Mold., *Résumé* 193 & 439. 1959; G. Taylor, *Ind. Kew. Suppl.* 12: 134. 1959; Munir, *Gard. Bull. Singapore* 21: 325 & 370. 1966; Mold., *Fifth Summ.* 2: 624. 1971; Mold., *Phytologia* 45: 469. 1980.

This variety differs from the typical form of the species chiefly in its leaf-blades being densely appressed-tomentose and whitish beneath.

Munir (1966) reduces this taxon to synonymy under the typical form of the species, but I feel that its leaf characters are sufficient to warrant varietal status. It is thus far known only from the type collection.

Citations: GREATER SUNDA ISLANDS: Sarawak: *Clemens & Clemens 21781 (Bz--isotype, N--type)*.

*SPHENODESME TRIFLORA* var. *MONTANA* Munir, Gard. Bull. Singapore 21: 373--[374], pl. 18. 1966.

Bibliography: Munir, Gard. Bull. Singapore 21: 316, 319, 325, 329, 367, & 373--375, pl. 18. 1966; Mold., Résumé Suppl. 15: 12. 1967; Munir, Biol. Abstr. 48: 4097. 1967; Mold., Fifth Summ. 1: 327 (1971) and 2: 844. 1971.

Illustrations: Munir, Gard. Bull. Singapore 21: [374], pl. 18. 1966.

This variety differs from the typical form of the species in the stems being ashy-brown and puberulous, the leaves thicker, subcoriaceous, and puberulous on the venation beneath, and the cymes 7-flowered.

The variety is based on *Clemens & Clemens s.n.* from Tenombok, Mt. Kinabalu, Sabah, collected in August, 1931, and deposited in the Singapore Botanical Garden herbarium.

Recent collectors describe the plant as a small climber, to 55 feet long, the stems 1--3 inches in diameter, the "flowers hairy". They have encountered it in yellowish sandy soil on low undulating land, in secondary forests on hillsides, and in reddish soil in logged-over hillside forests, at altitudes of 5000 feet. The "flowers" [corollas? bracts?] are said to have been "dull" on *Clemens & Clemens s.n.*, "yellowish-green" on *Elleh* 37442, "pinkish" on *Talip* 54925, "purplish" on *Talip* 68320, and "red-purple" on *Gibot* 54849. It has been found in flower from May to August and in fruit in July. The only recorded vernacular name for it is "akar", a name applied also to other taxa in this genus.

Material has been misidentified and distributed in some herbaria as *S. barbata* Schau., *S. pentandra* Jack, *S. stellata* Merr., typical *S. triflora* Wight, *Petraeovitex ternata* Hall. f., and *Petraeovitex* sp.

Citations: GREATER SUNDA ISLANDS: Sabah: *Clemens & Clemens s.n.* [Tenompok, Aug. 1931] (B--isotype, Bz--23029-isotype, Ca--54961-isotype, Mu-isotype, N-isotype, Ur-isotype, Z-isotype); *Elleh* SAN. 37448 (Z); *Puasa s.n.* [D. D. Wood 1935] (Ca--268702); *Talip* SAN. 54925 (Z), SAN. 68320 (Sn--40734). Sakal: *Gibot* SAN. 54849 (Z).

*SPHENODESME TRIFLORA* var. *RIPARIA* Munir, Gard. Bull. Singapore 21: 371--373, pl. 17. 1966.

Bibliography: Munir, Gard. Bull. Singapore 21: 316, 319, 325, 329, 371--373, 376, & 377, pl. 17. 1966; Mold., Résumé Suppl. 15: 12. 1967; Munir, Biol. Abstr. 48: 4097. 1967; Mold., Fifth Summ. 1: 327 (1971) and 2: 844. 1971.

Illustrations: Munir, Gard. Bull. Singapore 21: [372], pl. 17. 1966.

This variety, based on *Hose* 419 from the side of Entoyut River, Baram district, Sarawak, deposited in the British Museum herbarium in London, "is hardly distinguishable from the type form except that it has 5-flowered cymes and elenticellate twigs".

Munir (1966) cites from Sarawak *Haron* S. 21392 and *Hose* 419 and from Sabah *Chai* SAN. 25582. He comments that the Haron collection "differs from the holotype by its leaves being sub-coriaceous and

thickly grey-puberulent beneath; bracts and peduncles puberulent and comparatively thicker; branchlets puberulent. What is easily noticed in this specimen is the greyish colour of the leaves below, which is found in none of the other specimens of this or other varieties of this species." I feel that it should be compared carefully with var. *clemensorum* (Mold.) Mold., which also has the leaf-blades grayish beneath.

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# NOTES ON THE GENUS *NASHIA*

Harold N. Moldenke

Originally it was my plan to publish a detailed monograph of this genus, as of all the other genera in this family, but lack of time now renders this plan impractical. Yet it is probably worthwhile to place on record the miscellaneous bibliographic and herbarium notes assembled by my wife and myself over the past fifty years. This is the 52nd genus now so treated in this series of papers in *Phytologia* and elsewhere (*Brittonia*, *Feddes Repert. Spec. Nov.*, *Revisit. Sudam. Bot.*, etc.). Herbarium acronyms employed hereinafter are the same as used in all my previous papers since 1932 and are fully explained in my "Fifth Summary of the *Verbenaceae*...." (1971), volume 2, pages 195 to 801.

*NASHIA* Millsp., *Field Columb. Mus. Publ. Bot.* 2: 176. 1906.

Bibliography: Griseb., *Cat. Pl. Cub.* 215. 1866; Jacks. in Hook. f. & Jacks., *Ind. Kew.*, imp. 1, 2: 95. 1894; Millsp., *Field Columb. Mus. Publ. Bot.* 2: 176--177. 1906; Millsp., *Feddes Repert. Spec. Nov.* 7: 283--284. 1909; Urb., *Symb. Antill.* 7: 353. 1912; Prain, *Ind. Kew. Suppl.* 4, imp. 1, 160. 1913; Fedde & Schust., *Justs Bot. Jahresber.* 40 (2): 335. 1915; Britton & Millsp., *Bahama Fl.* 371. 1920; Prain, *Ind. Kew. Suppl.* 5, imp. 1, 173. 1921; Mold., *Phytologia* 18: 194. 1922; Urb., *Feddes Repert. Spec. Nov.* 18: 194--195 (1922) and 20: 344--345. 1924; J. C. Willis, *Dict. Flow. Pl.*, ed. 5, 443. 1925; A. W. Hill, *Ind. Kew. Suppl.* 7: 139. 1929; Fedde & Schust., *Justs Bot. Jahresber.* 53 (1): 1074. 1932; Junell, *Symb. Bot. Upsal.* 1 (4): 34 & 36, fig. 65. 1934; Mold., *Suppl. List Comm. Vern. Names* 15. 1940; Mold., *Phytologia* 2: 53--54. 1941; Mold., *Suppl. List Inv. Names* 5. 1941; Mold., *Alph. List Inv. Names* 13. 1942; Mold., *Known Geogr. Distrib. Verbenac.*, ed. 1, 24--26 & 96. 1942; Mold., *Phytologia* 2: 107. 1944; Jacks. in Hook. f. & Jacks., *Ind. Kew.*, imp. 2, 2: 95. 1946; Mold., *Alph. List Cit.* 1: 188. 1946; Mold., *Alph. List Inv. Names Suppl.* 1: 13--16. 1947; Mold., *Phytologia* 2: 384 (1947) and 2: 509. 1948; H. N. & A. L. Mold., *Pl. Life* 2: 30 & 73. 1948; Mold., *Alph. List Cit.* 3: 928 (1949) and 4: 1144, 1257, & 1258. 1949; Mold., *Known Geogr. Distrib. Verbenac.*, ed. 2, 42, 44, 48, 162, & 191. 1949; J. C. Willis, *Dict. Flow. Pl.*, ed. 6, 443. 1951; E. J. Salisb., *Ind. Kew. Suppl.* 11: 164. 1953;



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