

# The Angiosperm Flora of Singapore Part 4

## SCHISANDRACEAE

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### *Kadsura* Juss.

Ann. Mus. Hist. nat. 16 (1810) 340; Ridl., Fl. Malay Penins. 1 (1922) 20; A.C.Sm., Sargentia 7 (1947) 156; Backer & Bakh.f., Fl. Java 1(1963) 99; R.M.K. Saunders, Fl. Males. 1:13 (1997) 190; Syst. Bot. Monogr. (in press).

#### *Sarcocarpon* Blume

Woody, monoecious lianes. *Leaves* simple, alternate; exstipulate; lamina elliptic to ovate, papyraceous to coriaceous, apex acute or acuminate, margins denticulate to entire, base cuneate (especially when young), obtuse or truncate; petioles grooved adaxially. *Flowers* unisexual; in axils of leaves or fugaceous bracts, generally solitary, occasionally with a secondary flower growing in the axil of the prophyll, or in clusters of 2-4 forming glomerules, occasionally cauliflorous; tepals 7-24, imbricate at anthesis, suborbicular, elliptic or ovate, rarely obovate, outermost and innermost tepals  $\pm$  reduced, inner and middle tepals white, cream, yellow, pink or red, outer tepals often green; stamens 13-80, either essentially free but connate at the base of the filaments (occasionally with subulate appendages at the distal apex of the receptacle), or else stamens aggregated into a compact subglobose head with very broad connectives; pollen hexacolpate, distally syncolpate; carpels 17-300, free; ovaries with 2-5(-11) pendulous or ventrally attached ovules. *Fruit* a subglobose aggregate of berries attached to an ellipsoid or clavate receptacle; berries ripening red or yellow. *Seeds* 1-4(-11) per berry, smooth, hilum lateral or apical.

Distribution - There are 16 species in *Kadsura*, with a southern Chinese and Indo-Chinese centre of distribution, extending from southern Japan in the north-east, to Sulawesi and Java in the south-east, and Sri Lanka in the west (Smith, 1947; Saunders, in press). Only *K. scandens* is found in Singapore.

Ecology - Scrambling and twining woody vines of warm and subtropical broad-leaved forests, with some species extending into humid montane forests of up to 2400 m altitude.

Uses - See under *K. scandens*.

Notes - The most recent monograph of *Kadsura* is by Saunders (in press). A detailed review of the palynology of the family has been published by Pragłowski (1976).

## 1. *K. scandens* (Blume) Blume

Fl. Javae (1830) 9; King, J. Asiat. Soc. Beng. 58 (1889) 375; Ridl., J. Straits Brch R. Asiat. Soc. 33 (1900) 38; Backer, Schoolfl. Java (1911) 16-17; Koord., Exkurs.-Fl. Java 2 (1912) 242; Ridl., Fl. Malay Penins. 1 (1922) 20, f. 5; A.C.Sm., Sargentia 7 (1947) 199; Backer & Bahk.f., Fl. Java 1 (1963) 99; Steenis, Mountain Fl. Java (1972) pl. 29.3; H.Keng, Gdns' Bull., Singapore 27 (1974) 68; H.Keng, Concise Fl. Singapore (1990) 9; I.M.Turner, K.S.Chua & H.T.W.Tan, J. Singapore natn. Acad. Sci. 18 & 19 (1990) 83; I.M.Turner, Gdns' Bull., Singapore 45 (1993) 212; R.M.K. Saunders, Fl. Males 1:13 (1997) 198; Syst. Bot. Monogr. (in press).

*Sarcocarpon scandens* Blume; *Kadsura cauliflora* Blume; *Schizandra ovalifolia* P.Parm.

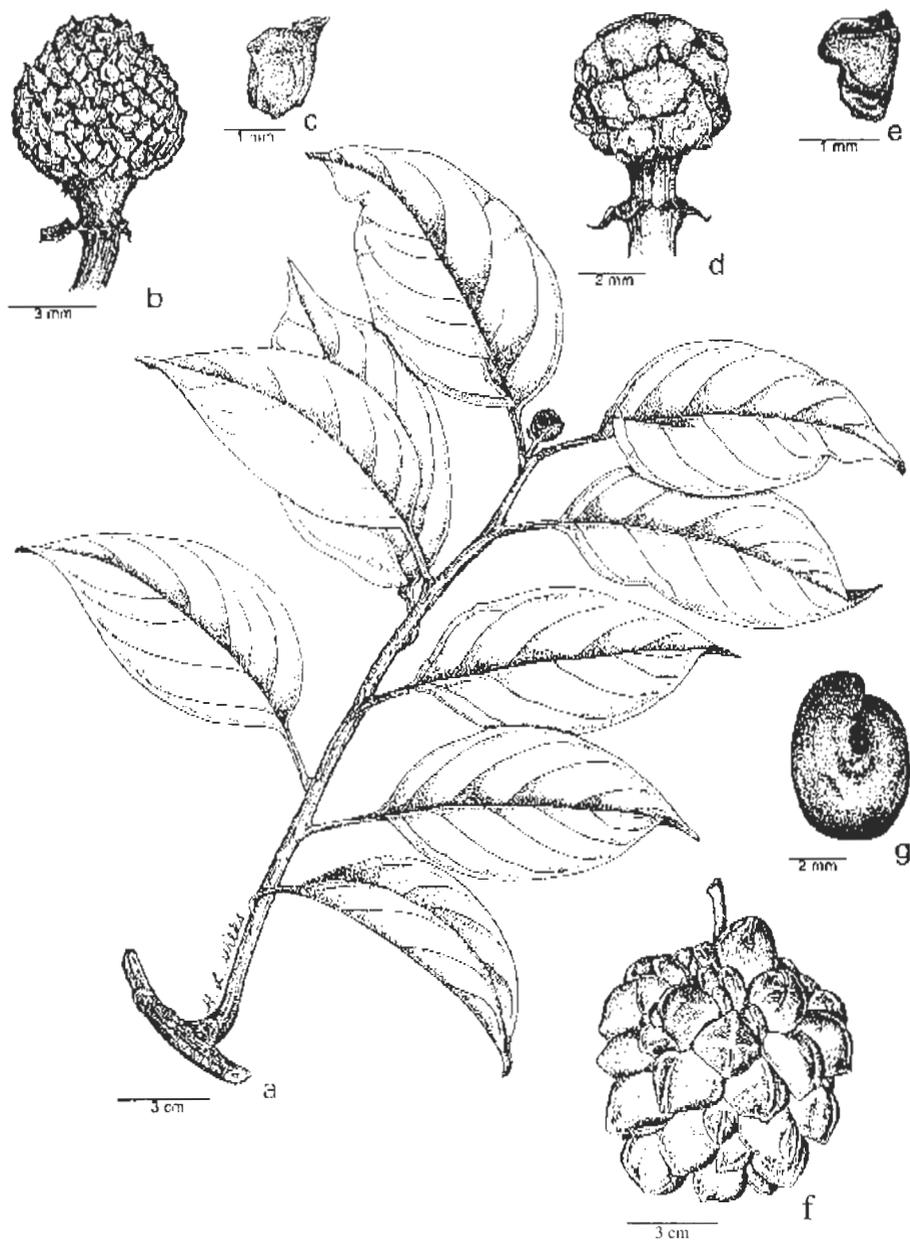
*Laminas* elliptic to ovate, (9-)10-15(-21) × (4.5-)5-9(-15) cm, secondary veins 4-6(-8) pairs, arcuate, apex acute to acuminate; margin entire; base obtuse to truncate (cuneate in younger leaves). *Flowers* unisexual; either borne solitary in axils of leaves (occasionally with a secondary flower borne in the axil of the prophyll) or in axils of fugaceous bracts, occasionally cauliflorous; tepals 10-18 (-24), white, pale yellow or red, outer tepals occasionally pale green, tinged red, outermost tepals 1.5-3.8 × 2.0-3.3 mm, innermost tepals 4.3-7.3(-10.5) × 2.9-6.2 mm, largest tepals (7.4-)9-16(-18.9) × (4.7-)7-12(-14.3) mm; male: stamens 24-52, anthers ± sessile, closely appressed in a subglobose to ellipsoid head, connectives broad, with dorsolaterally positioned thecae; female: carpels 50-82 (-110); pseudostigma broad, subpeltate. *Fruit* each with 40-93 berries (possibly more), ripening red, 9.5-22(-30) × 6.5-14(-17.5) mm. *Seeds* 1-2 per berry. - **Fig. 1.**

*Distribution* - Singapore: currently only in Upper Peirce Reservoir; previously collected in Bukit Timah, Botanic Gardens' Jungle, etc. Malay Peninsula, Sumatra, Java and Bali.

*Ecology* - Primary and secondary forests; in its range to 2400 m altitude.

*Uses* - *K. scandens* is reported to have a variety of medicinal uses. Decoctions of the roots and/or stems are used as a lotion to combat rheumatism or as an expectorant; the sap is drunk as a remedy for urinary problems, abdominal pains and diarrhoea, or applied to alleviate skin diseases; and the bark is further used to combat fevers (Burkill, 1966; Perry, 1980). The fruit is also reported to be edible, although rather astringent (Burkill, 1966).

*Notes* - Cuticular features are discussed by Rao (1939), and pollen structure by Wodehouse (1959) and Praglowski (1976).



**Fig. 1.** *Kadsura scandens* (Blume) Blume. a. Flowering branch. b. Female flower with perianth removed, showing gynoecium. c. Isolated carpel (lateral view). d. Male flower with perianth removed, showing androecium. e. Isolated stamen (lateral view). f. Fruit. g. Seed. [a. H.N. Ridley 6354 (SING); b.-c. M. Nur 26103 (SING); d.-e. P.W. Korthals s.n. (L); f. redrawn from van Steenis (1972: fig. 29.3); g. N. Wirawan 134 (L)]. Del. H.L. Wilks. (Reproduced with permission from *Flora Malesiana* 13).

## Acknowledgements

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