

**KADSURA ACSMITHII (SCHISANDRACEAE):
A NEW SPECIES FROM BORNEO**

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SUMMARY

A new species, *Kadsura acsmithii* R.M.K. Saunders (Schisandraceae), is described here from Borneo.

During the preparation of the account of the family Schisandraceae for the *Flora Malesiana* (Saunders, in press) a new species, *Kadsura acsmithii* R.M.K. Saunders, was discovered from Borneo.

Five species of *Kadsura* are now known from the region, belonging to two sections. *Kadsura heteroclita* (Roxb.) Craib possesses closely appressed stamens with thick fleshy connectives that are broader than thick, and with laterally positioned thecae so that the thecae of adjacent stamens are contiguous; this androecial structure is characteristic of sect. *Kadsura*. The other Bornean species [*K. acsmithii*, *K. borneensis* A.C. Sm., *K. lanceolata* King, and *K. marmorata* (E.G. & A. Henderson) A.C. Sm.] all belong to sect. *Sarcocarpon* (Blume) A.C. Sm., and possess a superficially similar androecial morphology, differing only in the shape of the connectives, which are as broad as thick so that the thecae of adjacent stamens are not contiguous.

The new species is distinct in possessing markedly ovate leaves, often with a very long acuminate apex (resulting in a high length:width ratio of 1.7–2.2–2.7); the leaves also frequently dry very flat, with indistinct intercostal veins. The flowers typically have large outer perianth segments (4.0–8.9 mm long), with an outer:largest perianth segment ratio of 0.4–0.5–0.6; the outer segments also tend to be more elongate in shape, with a length:width ratio of 1.2–1.7–2.3. The female flowers have a large number of carpels (35–110), with the stigmatic crest elaborated to form a broad and subpeltate unvascularised ‘pseudostigma’. The multiple fruits (bacceta) consist of generally small apocarps (7.1–7.4–7.7 × 6.0–6.5–6.9 mm) that are only slightly elongate (length:width ratio of 1.1–1.2), and are sessile.

Kadsura acsmithii bears the greatest resemblance to *K. scandens* (Blume) Blume due to foliar similarities, although the latter species does not occur in Borneo. This similarity is also reflected in the shape of the pseudostigma, which is broad and subpeltate as in most species of sect. *Sarcocarpon*, but in contrast to the narrow subulate stigmas of *K. lanceolata* and *K. borneensis*.

The following dichotomous key is provided for the identification of Bornean species of *Kadsura*:

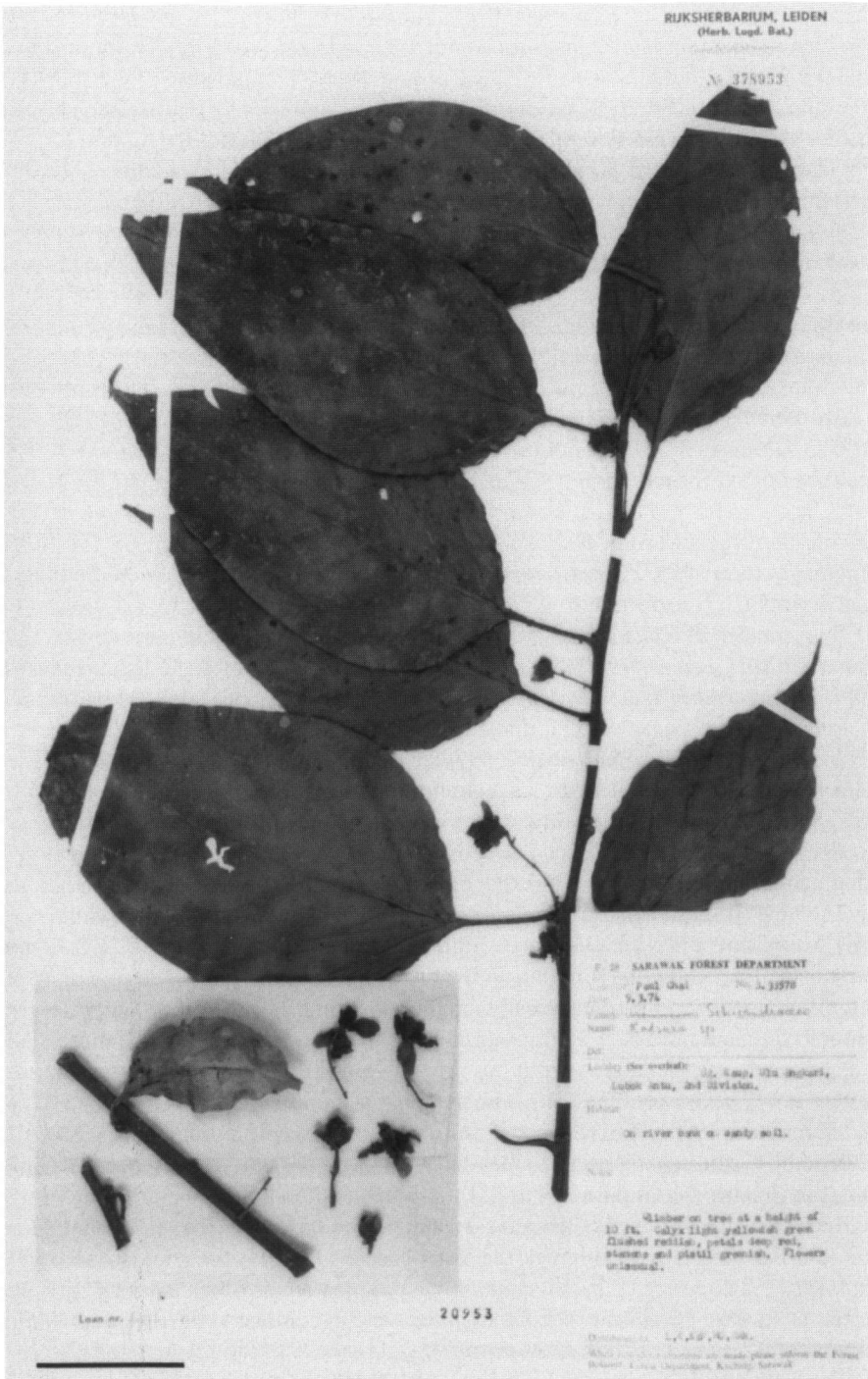


Fig. 1. Holotype of *Kadsura acsmithii* R.M.K. Saunders (*P. Chai* S 33578, L). Scale bar = 5 cm.

- 1a. Connectives of stamens broader than thick, thecae lateral, those of adjacent stamens contiguous (sect. *Kadsura*) **K. heteroclita**
- b. Connectives of stamens as broad as thick, thecae dorso-lateral, those of adjacent stamens not contiguous (sect. *Sarcocarpon*) 2
- 2a. Pseudostyles narrow, subulate; stamens 15–32; carpels 18–68 3
- b. Pseudostyles broad with subpeltate pseudostigmas; stamens 21–57; carpels 35–200(–300) 4
- 3a. Leaves small, (5.5–)6.5–13(–14.5) × (2.5–)3–5.5(–6) cm, with (3–)4–6(–9) pairs of secondary veins; flower pedicel long, (2–)4–11(–15) mm **K. lanceolata**
- b. Leaves large, (10.5–)12–17.5(–21.5) × 6.5–11(–15) cm, with (5–)7–8(–9) pairs of secondary veins; flower pedicel short, 0–2(–5) mm ... **K. borneensis**
- 4a. Leaves elliptic to ovate, with an acute to (short-)acuminate apex; lamina length: width ratio (1.1–)1.4–2.1(–3.0); outer perianth segments generally smaller, 1.5–3.8 × 2.0–4.7 mm, 0.1–0.4 length of largest; berries large, (16–)19–39 × 6–14 mm, and elongate, length: width ratio (1.4–)2.4–4.2(–5.6) .. **K. marmorata**
- b. Leaves broadly ovate, with a long-acuminate apex; lamina length: width ratio (1.7–)1.8–2.6(–2.7); outer perianth segments generally large, 4.0–8.9 × 2.3–7.3 mm, 0.4–0.7 of length of largest; berries small, 7–8 × 6–7.5 mm, ± spherical, length: width ratio 1.1–1.2 **K. acsmithii**

Kadsura acsmithii R. M. K. Saunders, spec. nov. — Fig. 1

Kadsura scandens affinis, a qua imprimis differt foliis late ovatis saepe cum apicibus longis acuminatis, rationibus longitudo: latitudo largis, (1.7–)1.8–2.6(–2.7); folias saepe siccitate laevis cum nervis intercostalis indistinctis; floribus cum perianthis segmentis extimis longis (4.0–8.9 mm), angustis (rationibus longitudo: latitudo, 1.2–2.3), et redactis (rationibus longitudinibus extimis: grandis, 0.4–0.6); floribus femineis cum carpellis numerosis (35–110), pseudostylibus latis cum pseudostigmatibus subpeltatis; fructibus aggregatis cum baccis sessilibus, parvis (7–8 × 6–7.5 mm), leviter elongatis (rationibus longitudo: latitudo, 1.1–1.2). — Typus: *P. Chai S 33578*, 9 March 1974 (L! holo; K!, KEP, MO, SAN, iso), Sg. Kaup, Ulu Engkari, Lubok Antu, 2nd Division, Sarawak.

Woody vines, glabrous. *Leaves* elliptic to ovate, (11–)13.5–18.5 × 5.5–10.5 cm, length: width ratio (1.7–)1.8–2.6(–2.7); papyraceous to coriaceous, (5–)8–20(–29) μm thick; base acute to obtuse (occasionally cuneate); apex acute to long-acuminate; margin entire; primary vein variably slightly to highly impressed above, (very) prominent below; secondary veins (3–)4–6 pairs per leaf, (slightly) arcuate; petiole 20–35 (–41) mm long, (1.0–)1.3–2.5(–2.9) mm diameter. *Flowers* either borne solitary in axils of leaves or in axils of fugaceous bracts, occasionally cauliflorous; pedicel 5–35 (–43) mm long, 0.7–1.9(–2.2) mm diameter. Perianth segments (9–)12–17, outer segments pale (yellowish-)green, tinged red, innermost pink to deep red; outermost perianth segment generally ovate, rarely obovate, 4.0–8.9 × 2.3–7.3 mm, length: width ratio 1.2–2.3, 0.4–0.6 of length of largest; innermost perianth segment ovate, elliptic or obovate, 4.1–8.5 × 2.4–5.0(–6.0) mm, length: width ratio (1.1–)1.3–1.8, 0.4–0.7 of length of largest; largest perianth segment generally ovate, rarely elliptic or obovate, 10.1–14.6 × 7.9–11.3 mm, length: width ratio 1.2–1.6. *Male flowers* with 22–53 pink to red stamens, anthers ± sessile, closely appressed in subglobose to

ellipsoid head, 4.5–5.6 mm diameter. *Female flowers* with 35–110 carpels, gynoecium c. 5.7 mm diam.; carpels 1.1–1.3 × 0.8–0.9 mm, length: width ratio 1.3–1.6; pseudostyle ± broad with subpeltate pseudostigma. *Fruit* pedicel ± elongated, 30–50 mm long; berries sessile, 35–110, ripening reddish-purple, 7–8 × 6–7.5 mm, length: width ratio 1.1–1.2, pericarp ± uniform in thickness or slightly thicker distally. Seeds 1 or 2 per berry, discoid or reniform, 5.8–6.5 × 6.8–7 mm, length: width ratio 0.8–1.0.



Fig. 2. Distribution of *Kadsura acsmithii* in Borneo.

Distribution — Borneo (Sarawak and Kalimantan). Fig. 2.

Habitat — Tropical to submontane forests (sea level to 1160 m altitude).

Etymology — Named in honour of Professor A. C. Smith, author of the only comprehensive monograph of the Schisandraceae (Smith, 1947).

Specimens studied. KALIMANTAN BARAT: Bukit Raya & upper Katingan (Mendawai) River, upper Samba River, 60–80 km NNW of Tumbang Samba, 112° 50' E, 0° 50' S, *J.P. Moge* 3737 (L); *ibid.*, *J.P. Moge & W.J.J.O. de Wilde* 4068 (K, L); Bukit Raya, 112° 47' E, 0° 45' S, *H.P. Nootboom* 4024 (BO, L); *ibid.*, 112° 45' E, 0° 45' S, *H.P. Nootboom* 4089 (A, L). — KALIMANTAN TIMUR: between Long Bawan & Panado, 3° 52' N, 115° 42' E, *R. Geesink* 9001 (A, L); Berau, near G. Redels, 112° 50' E, 0° 50' S, *A. Kostermans* 21751 (A, K, L). — SARAWAK: 5th Division, *W.M.A. Brooke* 10530 (L); Sg. Kaup, Ulu Engkari, Lubok Antu, 2nd Division, *P. Chai* S 33578 (K, L, type); G. Mulu National Park, 4th Division, *B. Lee* S 38112 (K, L).

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