

Schisandra parapropinqua (Schisandraceae), a new species from southwest China

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Schisandra parapropinqua Z.R. Yang & Q. Lin *sp. nova* (Schisandraceae) from Guizhou and Yunnan, southwest China, is described and illustrated. It grows only in thickets and forests on limestone hills at altitudes of 800–1300 m. *Schisandra parapropinqua* is close to *S. plena* and *S. propinqua*; the morphological differences are discussed.

Key words: *Schisandra*, new species, taxonomy

Schisandra (Schisandraceae) is a genus of ca. 10–23 species of scrambling and twining woody vines with an East Asian center of diversity, although one species is indigenous to eastern North America (Lin 2000, Saunders 2000). Many features of *Schisandra* are indicative of its comparatively primitive phylogenetic position (Saunders 2000). The plants are deciduous or evergreen lianas, bearing small, unisexual flowers with spirally arranged free carpels or stamens, and the androecium of male flowers is highly variable within the genus. The receptacle becomes elongated and a fruit is formed consisting of widely separated apocarps (Smith 1947, Law 1996, Saunders 2000). By contrast, the fruits of the closely related genus *Kadsura* are bacceta, in which the receptacle does not significantly elongate and the fruiting apocarps are closely appressed.

Schisandra comprises two subgenera, *Schisandra* and *Sphaerostema*. The latter consists of two

species, and is distributed in China, Myanmar, India, Indonesia, Nepal and Thailand. In *Schisandra* subg. *Sphaerostema* the laminae are chartaceous or subcoriaceous, and the outer stomatal rims are double. The flowers are solitary, or in clusters of 2–3, or 3–8 in racemes or panicles; the staminate receptacles are carnosous and inflated, spherical or obovoid; and the pistillate receptacles do not become significantly thickened or the peduncles not significantly elongated during fruiting. The testa is reticulate (Lin & Yang 2007).

During our expedition to Guizhou and examination of herbarium specimens from that province and Yunnan, southwest China, a previously unknown species belonging to *Schisandra* subgenus *Sphaerostema* was found. Many of the herbarium specimens were misidentified as *Schisandra propinqua*. However, the new species is very distinct when compared with its morphologically closest matches. Living plants were collected and cultivated in the conservation



Fig. 1. *Schisandra parapropinqua* (drawn by Ying-Bao Sun). — **A:** Flowering branch (from Z. S. Zhang & Y. T. Chang 5063, PE). — **B:** Androecium (from Z. R. Yang & M. T. An 1, PE). — **C:** Gynoecium (from Z. S. Zhang & Y. T. Chang 6510, PE). — **D:** Seed in side view (from Z. S. Zhang & Y. T. Chang 6958, PE). — **E:** Seed in ventral view (from Z. S. Zhang & Y. T. Chang 6958, PE).

room of Beijing Botanical Garden, the Institute of Botany, Chinese Academy of Sciences.

Schisandra parapropinqua Z.R. Yang & Q. Lin, sp. nova (Figs. 1–3)

Stamina et theca simile Schisandrae plenae A. C. Smith, *quae laminis ovatis vel ellipticis, 3.5–5.0 cm latis, margine integris; seminibus 5.5–6.5 mm longis, 7.0–7.6 mm latis differt. Habitu Schisandrae propinquae* (Wallich) Baillon *valde similis, sed staminibus in cavitibus omnino immersis comectivo libero nullo, thecis pariete exteriori cavitatum sessilibus.*

HOLOTYPE: China. Guizhou Province, Anlong County, 1134 m, 15.VI.2005 Z. R. Yang & M. T. An 1 (PE; isotypes BM, E, K, L, P, PE).

Woody vines, monoecious or dioecious, glabrous. Lateral branches with fugacious perules at base. Leaf laminas chartaceous or subcoriaceous, narrowly lanceolate, 4.5–11.2 cm long, 1.0–2.5 cm wide; apex acuminate or long-acuminate, base obtuse to widely cuneate, margin serrate, serrulate, or callososerrulate; primary vein plane to slightly prominent on adaxial surface, secondary veins 4–9 per side; petioles 6–14 mm long, 1–2 mm in diameter. Flowers axillary, or rarely terminal, solitary, 2–3 in clusters, or 3–5 in racemes; tepals 5–14, yellowish



Fig. 2. *Schisandra parapropropinqua* in natural habitat (photographed by Zhi-Rong Yang). — **A:** Staminate flowering branch. — **B:** Close-up of staminate flower.



Fig. 3. *Schisandra parapropropinqua* in natural habitat (photographed by Zhi-Rong Yang). Pistillate flowering branch.

green or pink; outermost tepals smallest, elliptic to ovate, 0.6–5.0 mm long, 0.8–3.0 mm wide; innermost tepals nearly orbicular, obovate or widely elliptic, 5–15 mm long, 4–11 mm wide; peduncles 5–8 mm long. Male flowers with a red androecium of 9–13 stamens, fused into a carnosse mass, spherical, 3–6 mm in diameter, with sessile anthers; thecae on opposing sides of cavity, dehiscing towards each other. Female flowers with gynoeceum of 30–39 free carpels, gynoeceum spherical or ovoid, 4.0–6.0 mm in diameter; carpels 1.7–2.1 mm long, 1.0 mm wide. Pistillate peduncles not significantly elongated during fruiting; pistillate receptacles 4–16 cm long and not significantly thickened during fruiting; apocarps red, globose. Seeds 1–2 per apocarps, flattened-reniform, 3.0–4.0 mm long, 4.0–4.6 mm wide, 2.5–4.0 thick, pale brown; testa smooth, helium small, V-shaped. Flowering from May to July and fruiting from late July to September.

ADDITIONAL SPECIMENS EXAMINED (paratypes). — **China.** Guizhou Province, Anlong County, 1125 m, 15.VI.2005, Z. R. Yang & M. T. An 2 (PE), 1167 m, 15.VI.2005, Z. R. Yang & M. T. An 3 (PE), idem., 1100 m, 24.V.2005, M.T. An 2004033 (PE), idem., 1180 m, 19.V.1960, Z. S. Zhang & Y. T. Chang 3605 (PE), idem., 1200 m, 26.V.1960, Z. S. Zhang & Y. T. Chang 3926 (IBK, PE, WUK), idem., 1100 m, 27.V.1960, Z. S. Zhang & Y. T. Chang 3960 (IBK, NAS, PE, WUK), idem., 1100 m, 11.VI.1960, Z. S. Zhang & Y. T. Chang 5063 (HGAS, NAS, PE, WUK), idem., 1100 m, 12.VI.1960, Z. S. Zhang & Y. T. Chang 4336 (NAS, PE, WUK), idem., 1300



Fig. 4. Natural habitat of *Schisandra parapropropinqua*. (photographed by Zhi-Rong Yang).

m, 23.VI.1960, Z. S. Zhang & Y. T. Chang 4914 (PE); Xingyi County, 1000 m, 9.VIII.1959, Anshun Exped. 576 (HGAS, PE), idem., 1200 m, 8.VII.1960, Z. S. Zhang & Y. T. Chang 6744 (HGAS, NAS, PE), idem., 1200 m, 8.VII.1960, Z. S. Zhang & Y. T. Chang 6749 (HGAS, IBSC, NAS, PE), idem., 9.VII.1960, Z. S. Zhang & Y. T. Chang 6847 (NAS, PE, SZ), idem., 1300 m, 12.VII.1960, Z. S. Zhang & Y. T. Chang 6958 (IBSC, PE), idem., 1050 m, 15.VII.1960, Z. S. Zhang & Y. T. Chang 6222 (HGAS, PE), idem., 1050 m, 24.VII.1960, Z. S. Zhang & Y. T. Chang 6502 (IBSC, NAS, PE), idem., 1050 m, 24.VII.1960, Z. S. Zhang & Y. T. Chang 6510 (IBSC, NAS, PE, WUK); Xingren County, 1300 m, 28.VI.1986, C. Z. Dang & P. Dang 205 (PE). Yunnan Province, Pingbian County, 1200 m, 28.VII.1934, H.T. Tsai 61333 (KUN, PE).

DISTRIBUTION AND HABITAT: Endemic to Guizhou and Yunnan, southwest China. In thick-

ets or forests on limestone hills at altitudes of 800–1300 m. (Figs. 4 and 5). The distributions of the related species *S. propinqua* and *S. plena* are also given in Fig. 5. *Schisandra propinqua* is mainly distributed in Bhutan, China, India, Indonesia, Myanmar, Nepal and Thailand; *S. plena* is known from China and India.

Schisandra parapropinqua resembles *S. plena* and *S. propinqua*. The three species are compared in Table 1.

Key to the species of *Schisandra* subg. *Sphaerostema*

1. Thecae sessile, located on opposing sides of cavities on the surface of the carnosé androecium 2
1. Thecae introse, borne on free connectives arising from cavities on the surface of the androecium .. *S. propinqua*
2. Leaf blades narrowly lanceolate, 1.0–2.5 cm wide, margins serrate; androecium spheroid, stamens 9–13; seeds 3.0–4.0 mm long, 4.0–4.6 mm wide .. *S. parapropinqua*
2. Leaf blades ovate or elliptic, 3.5–10.0 cm wide, margins entire; androecium obovoid, stamens 5–9; seeds 5.5–6.5 mm long, 7.0–7.6 mm wide *S. plena*

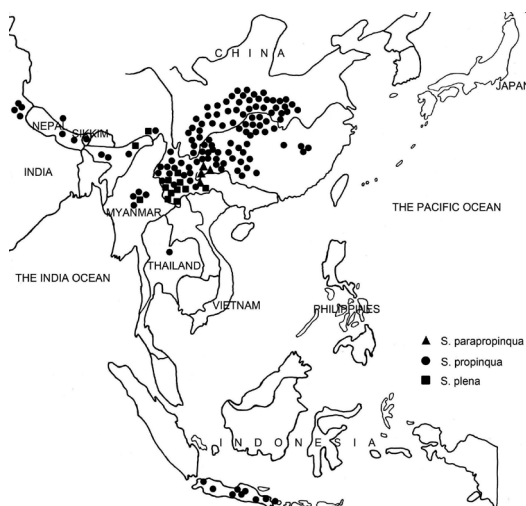


Fig. 5. Geographic distribution of *Schisandra parapropinqua*, *S. propinqua* and *S. plena*.

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Table 1. Comparison of morphological characteristics of *Schisandra parapropinqua*, *S. plena* and *S. propinqua*.

Characters	<i>S. parapropinqua</i>	<i>S. plena</i>	<i>S. propinqua</i>
Leaves	4.5–11.2 cm long, 1.0–2.5 cm wide, narrowly lanceolate, margin serrate, serrulate, or callosa-serrulate	7.0–14 cm long, 3.5–10 cm wide, ovate to elliptic margin entire	5–11.5 cm long, 2–4 cm wide, elliptic to ovate, denticulate-serrulate, rarely serrate
Flowers	Axillary or terminal; tepals yellowish green, innermost ones pink at adaxial side	Axillary; tepals white or pale yellow, red at base	Axillary; tepals cream, yellow, orange, pink, or flushed purplish
Carnosé androecial mass	Red, spherical	Red, obovoid	Yellow, ellipsoid or spherical
Stamens	9–13	5–9	4–18
Thecae	Sessile, anthers on opposing sides of cavity, dehiscing towards each other	Sessile, anthers on opposing sides of cavity, dehiscing towards each other	Introse, anthers borne on free connectives, arising from cavities
Carpels	30–39	26–33	18–52
Fruit receptacles	4–16 cm long	5–17 cm long	2–6.5 cm long
Seeds	3.0–4.0 mm long, 4.0–4.6 mm wide	5.5–6.5 mm long, 7.0–7.6 mm wide	3.0–5.4 mm long, 3.5–5.5 mm wide

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