Sladenia integrifolia (Sladeniaceae), a New Species from China

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ABSTRACT. A new species of *Sladenia* (Sladeniaceae) from China, *Sladenia integrifolia* Y. M. Shui, is described and illustrated. The relationship to and characters distinguishing the new species from *Sladenia celastrifolia* Kurz are discussed. The systematic position of the genus is also reviewed.

Key words: China, *Sladenia*, Sladeniaceae.

Between 15 and 26 October 1999, the authors made an expedition to the Xilongshan range of Jingping County, southeastern Yunnan, China, adjacent to southwestern Vietnam. During the expedition, the specimen *Zhou Zhe-Kun et al. EXLS-0039* (fr) was identified as *Sladenia celastrifolia* Kurz. However, further study showed that the entire margin of the leaves differed from the serrated margin of those of *Sladenia celastrifolia*. On 15 May 2001, another specimen, *Mo Ming-Zhong, Mao Rong-Hua & Yu Zhi-Yong 05* (fl), was collected, and more differences were found. As a result, a new species of *Sladenia* Kurz (Sladeniaceae) is here described.

Sladenia integrifolia Y. M. Shui, sp. nov. TYPE: China. Yunnan: Jinping Co., Zhemi community, Citongba to Liangzi, second dry evergreen forests, 1100–1300 m, 15 May 2001 (fl), *Mo Ming-Zhong, Mao Rong-Hua & Yu Zhi-Yong 05* (holotype, KUN 0735701; isotypes, MO, PE). Figure 1.

Species *Sladeniae celastrifoliae* similis, sed foliis integris, floribus lateralibus pedicellis 2.5–4 mm longis, sepalis late ovatis, 2.0 mm longis, 1.5 mm latis, filamentis base non connatis, fructibus 3 mm longis et crustaceis, costis non conspicuis, differt.

Evergreen trees, 13–15 m tall; branchlets green, terete, turgid, glabrous throughout; buds broadly ovate, glabrous. Leaves spiral, papery, glabrous, ovate or lanceolate, 5–11 cm long, 2.5–4.0 cm wide, adaxially deep green, abaxially greenish; base broadly cuneate, slightly decurrent on the petiole; margin entire, apex acuminate or caudate, with obtuse tip; midrib shallowly canaliculate on adaxial surface, raised on abaxial, lateral veins in 7 to 9 pairs, raised on both surfaces, secondary nerves sparse, slightly prominent on both surfaces; petiole 0.7–0.9 cm long, glabrous. Dichotomous cymes axillary, usually 4- or 5-forked, congested, with 14 to 17 flowers; peduncle glabrous, 0.4–0.8 cm; terminal flowers with pedicels 0.2–0.3 mm long, lateral flowers with pedicels 2.5–4.0 mm long; bracts narrowly ovate, ca. 2 mm long; bracteoles ovate, ca. 0.8 mm long, glabrous, caducous. Sepals broadly ovate, imbricate, ca. 2 mm long, 1.5 mm wide, obtuse at apex, with ciliate margin, not sprawling-reverse in fruit. Corolla white, urn-shaped, glabrous, ca. 3 mm long, ca. 3 mm diam. at base, 5-fid at apex; corolla tube 0.7–0.8 mm long; lobes 5, involute, concave, oblong, 2.2–2.3 mm long, 1.5–1.7 mm wide. Stamens 8 to 10, inserted at base of corolla; filaments free, ca. 0.8 mm long, ca. 0.4 mm wide, acute at apex; anthers inflexed, ovate, ca. 0.8 mm long, apex 2-dehiscent with 2 hairs, base sagittate with 2 hairs on each side; ovary 3-locular, conoid, ca. 2 mm long, ca. 0.9 mm diam. at base, glabrous, apex continuous with style, tip 3-fid. Fruit ovoid, crustaceous, slightly striate, ca. 3 mm long, 1.0–1.1 mm diam. Seeds trigonal, winged, ca. 1.5 mm long, ca. 0.3 cm wide.

Habitat. In secondary evergreen forests, 1000–1300 m.

Phenology. Flowering March to June; fruiting July to December.

Distribution. China (SE Yunnan Province).

The flower and fruit characteristics of *Zhou Zhe-Kun et al. EXLS-0039* clearly belong to those of the genus *Sladenia*, as elaborated on by Ming (1997). However, the entire leaves show that it is not identical to *Sladenia celastrifolia*. The new species further differs from *Sladenia celastrifolia* in its glabrous twig, broadly ovate sepals, 2.5–4.0 mm long

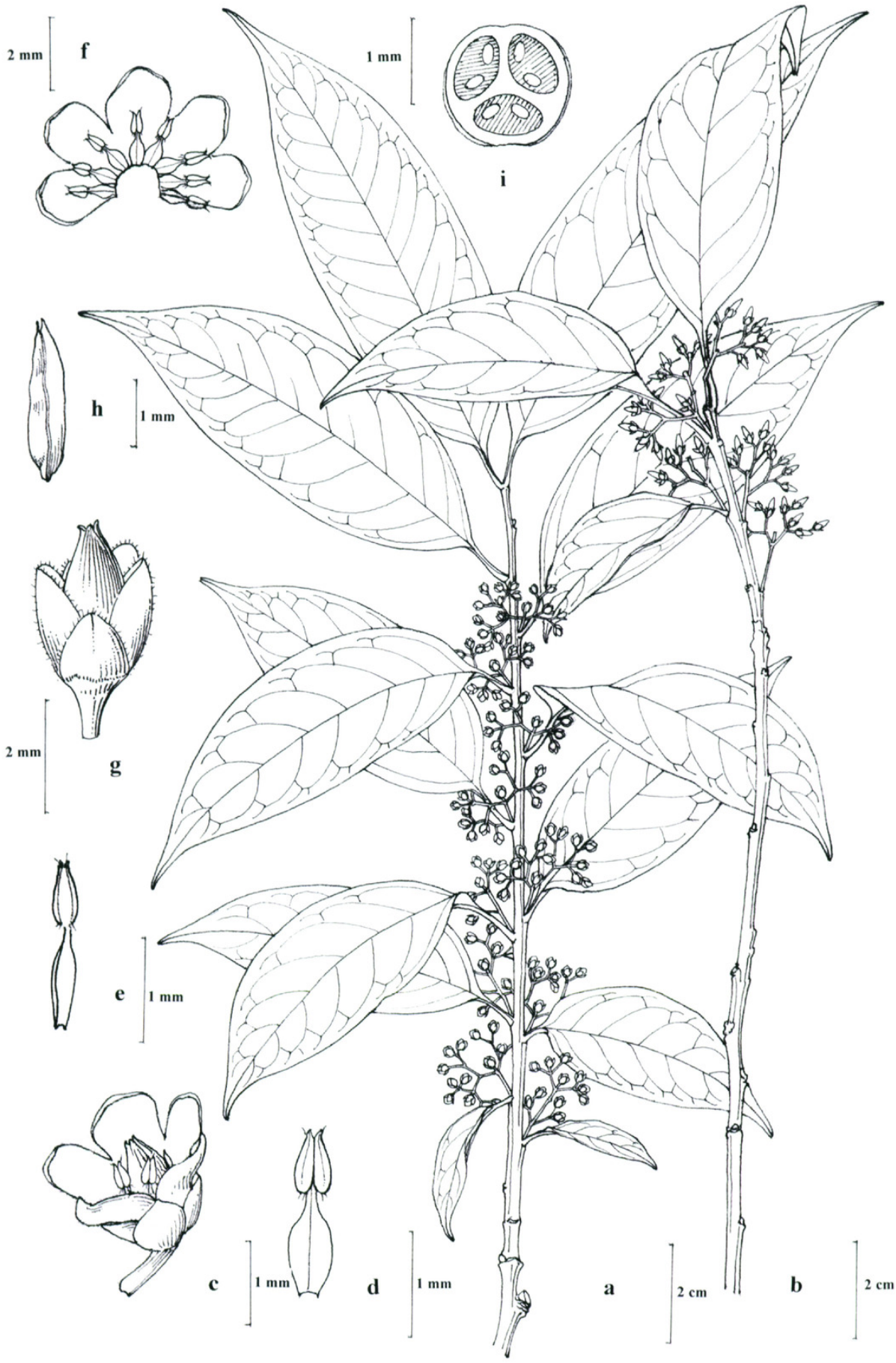
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Table 1. Differences between *Sladenia celastrifolia* and *S. integrifolia*.

Characteristics	*Sladenia integrifolia* Y. M. Shui	*Sladenia celastrifolia* Kurz
Leaf margin	entire	serrate, rarely entire
Lateral pedicel	2.5–4 mm	7–10 mm
Cymes	4- or 5-forked, congested	2- or 3-forked, spananthus
Sepal	broadly ovate; not erect in mature fruit; 2.0 mm long, 1.5 mm wide	oblong; sprawling-reverse in mature fruit; 5–6 mm long, 2–3 mm wide
Corolla	2.9–3.1 mm long, connate at base	5.3–6.4 mm long, almost distinct at base
Corolla tube	0.7–0.8 mm long, ca. ¼ as long as corolla	0.3–0.4 mm long, ca. 1/17 as long as corolla
Corolla lobe	broadly oblong; 2.2–2.3 mm long, 1.5–1.7 mm wide	oblong; 5–6 mm long, 2–3 mm wide
Filament	0.8 mm long, 0.4 mm wide, distinct at base	1.5 mm long, 1 mm wide, connate at most weakly
Stamens	8 to 10	10 to 13
Anther	ovate, 0.8 mm long	sagittate, 2 mm long
Ovary	conoid, obtuse at apex	pyramidal, acuminate at apex
Fruit	ovoid, slightly striate, crustaceous; 3 mm long, 1.0–1.1 mm diam.	bottle-shaped, ribbed, woody; 7–8 mm long, 3–4 mm diam.
Seed	1.5 mm long, 0.3 cm wide	3 mm long, 1 mm wide

lateral pedicels, and 3 mm long, slightly striate fruits (Table 1).

The formerly monotypic genus *Sladenia* is allied with Dilleniaceae (Gilg, 1893), Linaceae (Haller, 1923), Sladeniaceae (Airy Shaw, 1964), Actinidiaceae (Gilg & Werdermann, 1925; Hutchinson, 1969), and Theaceae (Kurz, 1873; Keng, 1962; Cronquist, 1981; Takhtajan, 1996; Thorne, 2000). Airy Shaw (1964) considered it to be a monotypic family, Sladeniaceae. In *Sladenia* the basic number of chromosomes (Li, 2002), the character of wood anatomy (Deng & Baas, 1990, 1991), the apical pore of the anthers (Kobuski, 1951; Keng, 1962), palynology (Wei et al., 1997), and embryology (Li et al., 2002) are all considerably different from the family Theaceae. Molecular DNA allies *Sladenia* with the East African *Ficalhoa* Hiern, the two forming the sister taxon to Ternstroemiaceae (Anderberg et al., 2002). It is thus reasonable that the group is considered to be a monotypic family. Currently, materials of testa anatomy and chemistry are poorly known. A detailed systematic study of the characteristics and relationships in light of the new species will be significant to understanding the position of the genus *Sladenia* in angiosperms.

Paratypes. CHINA. **Yunnan:** Jinping Co., Zhemi community, Citongba to Liangzi, in secondary evergreen forests, 1290 m, 17 Oct. 1999 (fr), *Zhou Zhe-Kun, Fei Yong, Shui Yu-Min, Zhang Guang-Jie & Yang Jian-Kun EXLS-0039* (KUN, MO, PE), 25 June 2001 (fl), *Hu Yun-Qan & Deng Ling 22* (KUN), 1 July 2001 (yng. fr), *Li Lu et Kong Dong-Rui 2001-7-1* (KUN, MO, PE).

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Figure 1. *Sladenia integrifolia* Y. M. Shui. —a. Habit (in flower). —b. Habit (in fruit). —c. Flower. —d. Adaxial view of stamen. —e. Lateral view of stamen. —f. Opened corolla and stamens. —g. Fruit with persistent calyx. —h. Seed. —i. Transverse section of fruit. a, c–f from the holotype (*Mo Ming-Zhong, Mao Rong-Hua & Yu Zhi-Yong 05*); b, g–i from a paratype (*Zhou Zhe-Kun, Fei Yong, Shui Yu- Min, Zhang Guang-Jie & Yang Jian-Kun EXLS-0039*). Drawn by Wu Xi-lin.

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