
Clematis erectisepala (Ranunculaceae), a New Species from Eastern Tibet, China

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ABSTRACT. *Clematis erectisepala*, a new species of Ranunculaceae collected from Yanjing Village of Markam County in eastern Tibet, is described and illustrated. It is distinguished from other *Clematis* by its nodding yellow flowers with erect sepals and glabrous stamens. This new species is similar to *C. brevicaudata* DC. vegetatively, but differs from the latter in floral structure.

Key words: China, *Clematis*, eastern Tibet, Ranunculaceae.

Clematis L., containing about 300 species, is one of the largest genera in Ranunculaceae (Wang, 1998). It is distinguished from other genera of the family by woody climbing stems (for most *Clematis* species) and opposite leaves. The genus *Clematis*, widely distributed in all continents except Antarctica, exhibits significant diversification in the Hengduan Mountains (western Sichuan, eastern Tibet, and western Yunnan provinces in China). Linnaeus (1753) first described nine species of *Clematis* in his great work *Species Plantarum*. The genus as delimited by Candolle (1818) has been accepted as a natural group. Prantl's (1888) classification of *Clematis*, with minor changes and additions, has been generally accepted until today. Recently, increasing attention has been paid to *Clematis* due to its great horticultural value (Tamura, 1995; Johnson, 1997; Grey-Wilson, 2000). In the summer and autumn of 2003, an extensive field investigation was conducted in the Hengduan Mountains. Based on thorough examination and identification of the specimens of *Clematis* collected during the exploration and their comparison to the specimens deposited in PE and KUN, a new species was recognized as *Clematis erectisepala* L. Xie, J. H. Shi & L. Q. Li.

Clematis erectisepala L. Xie, J. H. Shi & L. Q. Li, sp. nov. TYPE: China. Tibet: Markam County, Yanjing Village, climbing shrubs along the roadside, ca. 2650 m, 29°02'33"N, 95°45'87"E, 31 Aug. 2003, L. Xie YJ01 (holotype, PE; isotypes, MO, PE [2]). Figures 1, 2.

Haec species *C. brevicaudatae* DC. affinis, sed ab ea floribus nutantibus atque calyce campanulato ex sepalis luteis erectis constante differt.

Woody vines; branches shallowly 6-grooved, sparsely puberulous. Leaves mostly ternate at upper nodes, with some bi-ternate and pinnate leaves at lower nodes; petioles 30–50 mm; leaflet blades papery, ovate or narrowly ovate, 21–30 × 12–22 mm, 3-lobed or undivided, both surfaces glabrous, margin coarsely dentate or entire or denticulate, base truncate or broadly cuneate, rarely rounded; apex acuminate or caudate; basal veins abaxially slightly prominent. Cymes terminal and axillary, 3- to many-flowered, often panicle-like; peduncle 6–10 cm, sparsely appressed puberulous; bracts opposite, subsessile, narrowly ovate to lanceolate, 4–13 mm long, 2–4 mm wide. Pedicel 5–10 mm, puberulous; calyx campanulate, 10 mm diam.; sepals 4, yellow, erect, oblong, 10 mm long, 3–4 mm wide, margin abaxially velutinous, apex acute and recurved; stamens numerous, 8–10 mm long, filaments linear, glabrous, anthers narrowly oblong, 2–3 mm, glabrous, apex obtuse; ovary puberulous; style 5 mm, densely villous. Fruit not seen.

Pollen grain prolate spheroidal (20 × 15 μm), tricolpate; colpi long, thin, running from pole to pole; exine bears a perforate tectum with microechinate ornamentation (Figure 2A–C).

The shapes of leaf epidermis cells are irregular on both the adaxial and abaxial blade surfaces, with stomata only appearing abaxially. The stomatal apparatuses are all anomocytic. The outlines of the guard cell pairs are suborbiculate, and the rims are

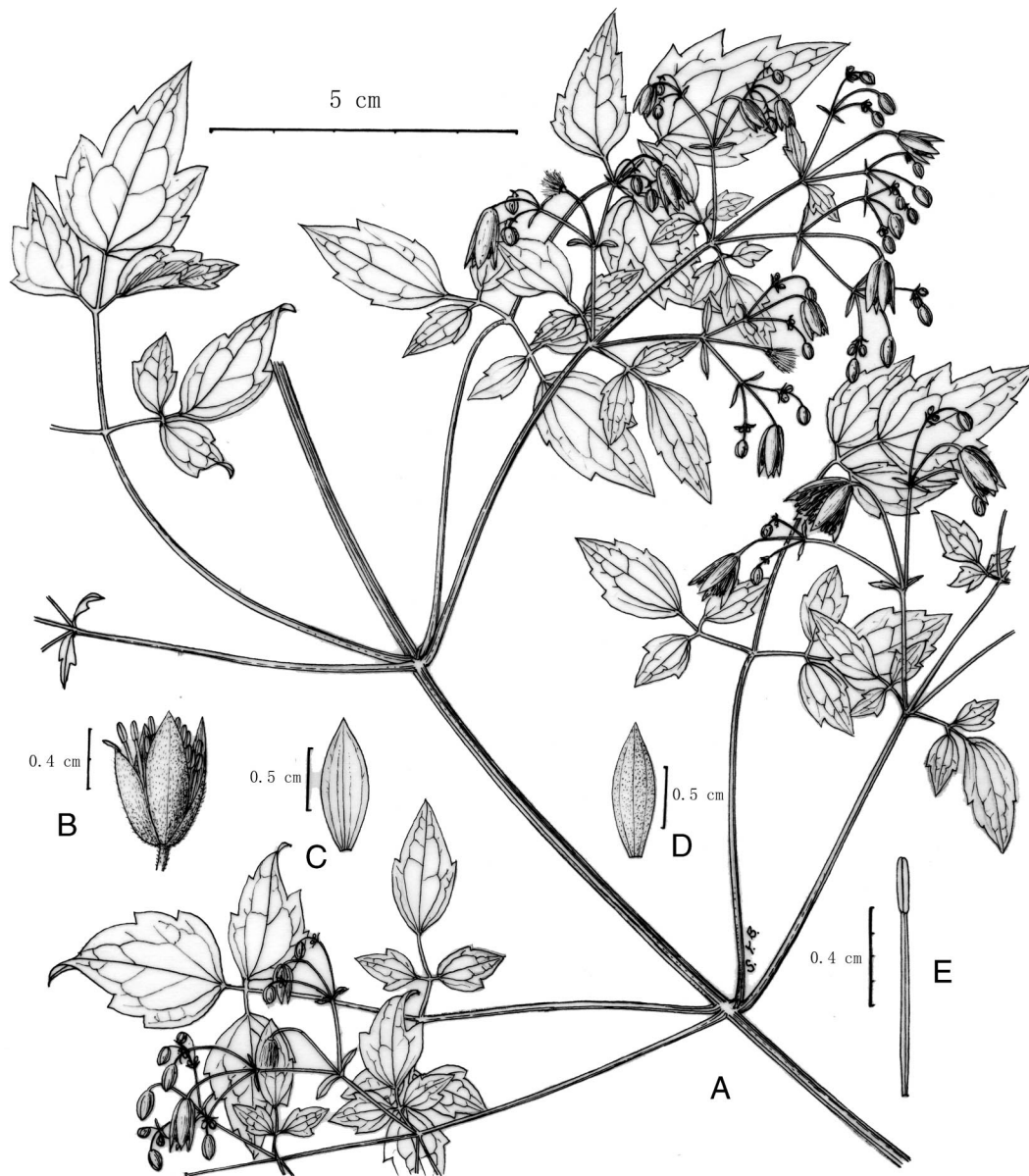


Figure 1. *Clematis erectisepala* L. Xie, J. H. Shi & L. Q. Li. —A. Habit. —B. Flower. —C. Sepal (adaxial side). —D. Sepal (abaxial side). —E. Stamen. Drawn from L. Xie YJ01 (PE).

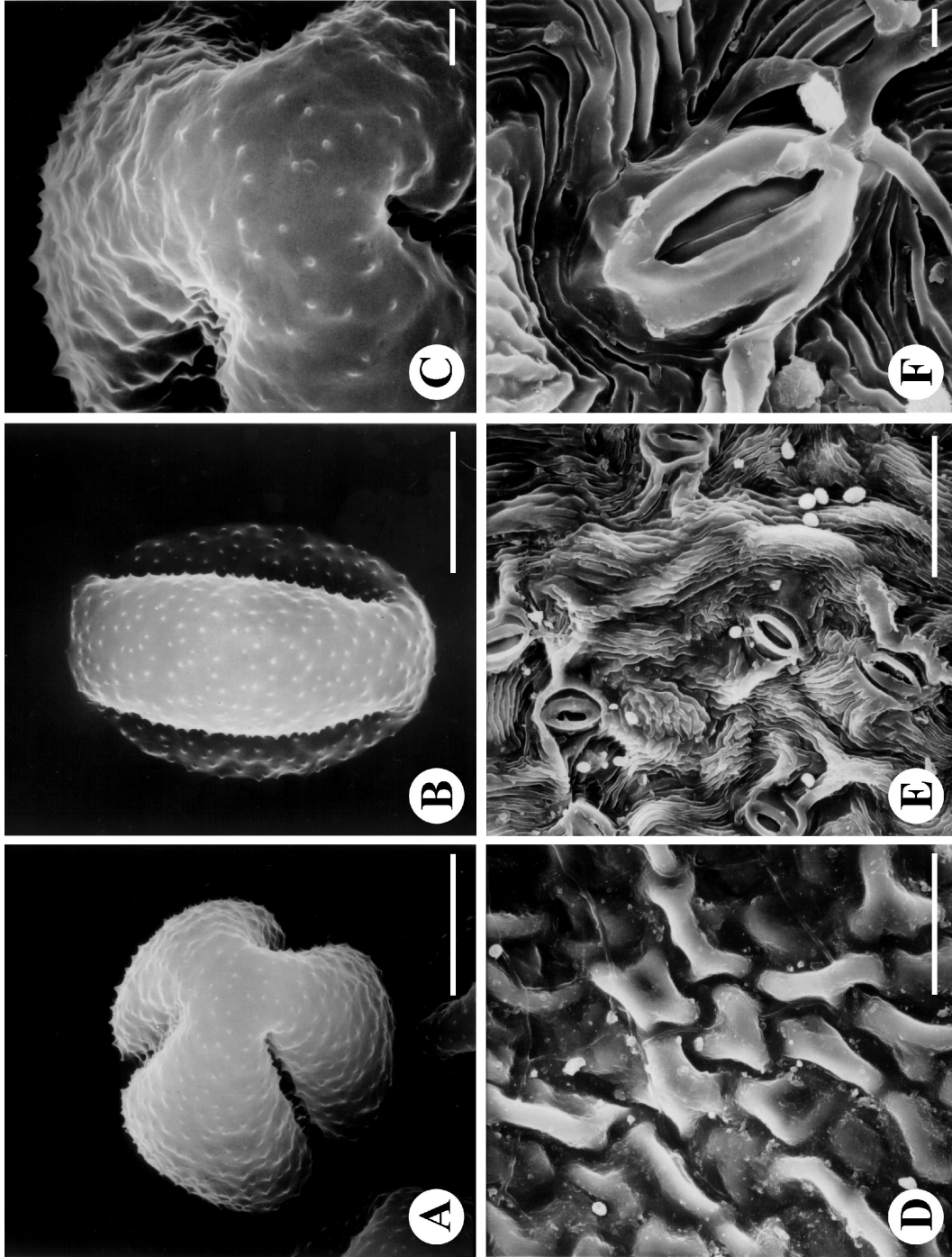
almost at the same level with the epidermis. The wax ornamentation of the leaf cuticle is nearly smooth on the adaxial surface and heavily striated on the abaxial surface (Figure 2D–F).

Distribution. Endemic to the Hengduan mountains in China, it has been recorded so far from only four counties: Nanping County, Barkam County (Sichuan Province); Yanjing County (Tibet Autonomous Region); and Dêqên County (Yunnan

Province). It has been found at 1500–2700 m elevation.

Flowering and fruiting. Flowering time August to September; fruit not seen.

Ecology. The new species is found in the edge of Yanjing Village, which is located in Me Kong River valley at an altitude of 2650 m. It scrambles up shrubs of *Rosa* L. and is associated with *Cle-*



matis rehderiana Craib and *C. akebioides* (Maximowicz) Veitch, which are two common *Clematis* in the Hengduan Mountains.

Etymology. The species epithet refers to the erect sepals of this species; most *Clematis* with glabrous stamens have spreading sepals.

Clematis erectisepala L. Xie, J. H. Shi & L. Q. Li is allied to *Clematis brevicaudata* DC. by its habit, inflorescence type, leaf shape, and other vegetative characters. However, the new species differs by floral structure: the sepals are yellow, erect and the flowers are bell-shaped and always nodding. The new species is often misidentified as *C. peterea* Handel-Mazzetti and *C. brevicaudata* DC. by its leaf shape and glabrous stamens.

Paratypes. CHINA. **Sichuan:** Nanping County, river valley, alt. 1500 m, 7 Aug. 1983, *Z. X. Tang 1648* (PE); Barkam County, river valley, alt. 2650 m, 3 Aug. 1977, *Anonym 23328* (PE). **Tibet:** Yanjing County, river valley, alt. 2700, *Comprehensive exploration team 76-767* (PE). **Yunnan:** Dêqên County, river valley, alt. 2100 m, 25 Aug. 1981, *Y. F. Han, K. M. Deng & Y. R. Chen 81-1795* (PE).

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Figure 2. *Clematis erectisepala* L. Xie, J. H. Shi & L. Q. Li. Scanning electron photomicrographs of pollen grains (A–C). —A. Polar view. —B. Equatorial view. —C. Pollen exine details. Scale bar = 7.5 μm . Scanning electron photomicrographs of leaf epidermis (D–F). —D. Adaxial epidermis. —E. Abaxial epidermis. —F. Stomatal apparatus. Scale bar = 50 μm .