

## *Ligusticum gongshanense* sp. nov. (Umbelliferae) from western Yunnan, China

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*Ligusticum gongshanense* Pu, R. Li & H. Li, a new species of Umbelliferae from western Yunnan, China, is described and illustrated. It is closely similar to *L. franchetii* H. de Boissieu, but differs by having unbranched and light yellow stem, white petals, and styles shorter than stylopodium.

The genus *Ligusticum* L. includes about 50 species distributed in Asia, Europe, and North America (Wu et al. 2006, Mabberley 2008). Forty species are distributed in China, 35 of which are endemic (Pu and Watson 2005).

During the past twelve years, a series of expeditions to the western Yunnan for the project 'Biodiversity survey of Gaoligong mountains' have jointly been carried out by Kunming Inst. of Botany, Chinese Academy of Sciences and Dept of Botany, California Academy of Sciences. During these expeditions we collected some interesting *Ligusticum* specimens. Among them, we found one species with morphological features that differed from all known species of *Ligusticum*. After a morphological study, literature search (Pu 1993, She 1997, Watson 1999, Pu and Watson 2005), and examination of many other specimens in the herbaria KUN and CDBI, we concluded it represents a new species as described and illustrated below.

### *Ligusticum gongshanense* Pu, R. Li & H. Li sp. nov. (Fig. 1)

*Species L. franchetii* H. Boissieu affinis, sed caule singulo et luteolo, petalis albis, stylis stylopodiis brevibus quam differt.

**Type:** China. Yunnan province, Gongshan Xian, Cikai Zheng, about 1.2 direct km by southeast of the Heipu Pass tunnel on the new road from Gongshan to the Dulong Jiang valley, east side of Gaoligong Shan, wet meadow with stream, some scattered rocks, growing along stream, 27°45'41.7"N, 98°27'2.3"E, 3350 m a.s.l., 13 Aug 2006, Gaoligong Shan biodiversity survey 32097 (holotype: KUN, isotype: CDBI).

Perennial herb, 30–40 cm tall, slender, glabrous. Root dark brown, fusiform, ca 10 × 0.3–0.4 cm. Stem single, erect, cylindrical, striate, light yellow, base usually clothed

in fibrous remnants of sheaths. Basal and lower leaves with petioles 3–6 cm long, sheaths purplish, oblong-ovate; blade triangular-ovate, ca 5–8 × 4–5 cm, 3-pinnate, primary pinnae in 5–6 pairs, ultimate segments linear to lanceolate, apex acute, ca 6–11 × 4–6 mm; upper leaves with petioles 1–3 cm long, blade triangular-ovate, 2.5–4.0 × 1.5–2.0 cm, 1–2-pinnate, primary pinnae in 4–5 pairs, ultimate segments linear to lanceolate, apex acute, ca 5–10 × 3–5 mm, margins incised. Umbels compound, terminal, 6 cm in diameter; bract absent; rays 7–12, unequal, 1.5–3.0 cm long, glabrous; bracteoles 3–5, linear to lanceolate, 1-pinnate, rarely entire or 2–3-lobed at apex, 1–2 cm long, twice as long as the umbellules; umbellules 15–20-flowered, pedicels slender, unequal, ca 2–4 mm long. Calyx teeth conspicuous, lanceolate; petals white, obcordate with cuneate base and incurved apex; stylopodium short conic; styles shorter than stylopodium. Fruits oblong-ovoid, dorsiventrally compressed, ribs prominent, filiform.

### *Distribution and ecology*

Currently known only from the type locality on Cikai Zheng, Gongshan Xian, Yunnan province, China. Here, *Ligusticum gongshanense* grows in a wet meadow at 3350 m a.s.l. and shares its habitat with plants such as *Gentiana* spp., *Gaultheria* spp., *Primula* spp., *Potentilla* spp., *Carex* spp., *Rhododendron* spp., and *Salix* spp. It was found flowering and fruiting in August.

### *Conservation status*

The species has been collected only once from the type locality and is therefore assumed to be rare. It is considered as 'Endangered' (EN) using the criteria set out by IUCN (2001) as its known area of occupancy is less than 500 km<sup>2</sup> (criterion B2) and the total population size is estimated to be smaller than 2500 mature individuals (criterion C).

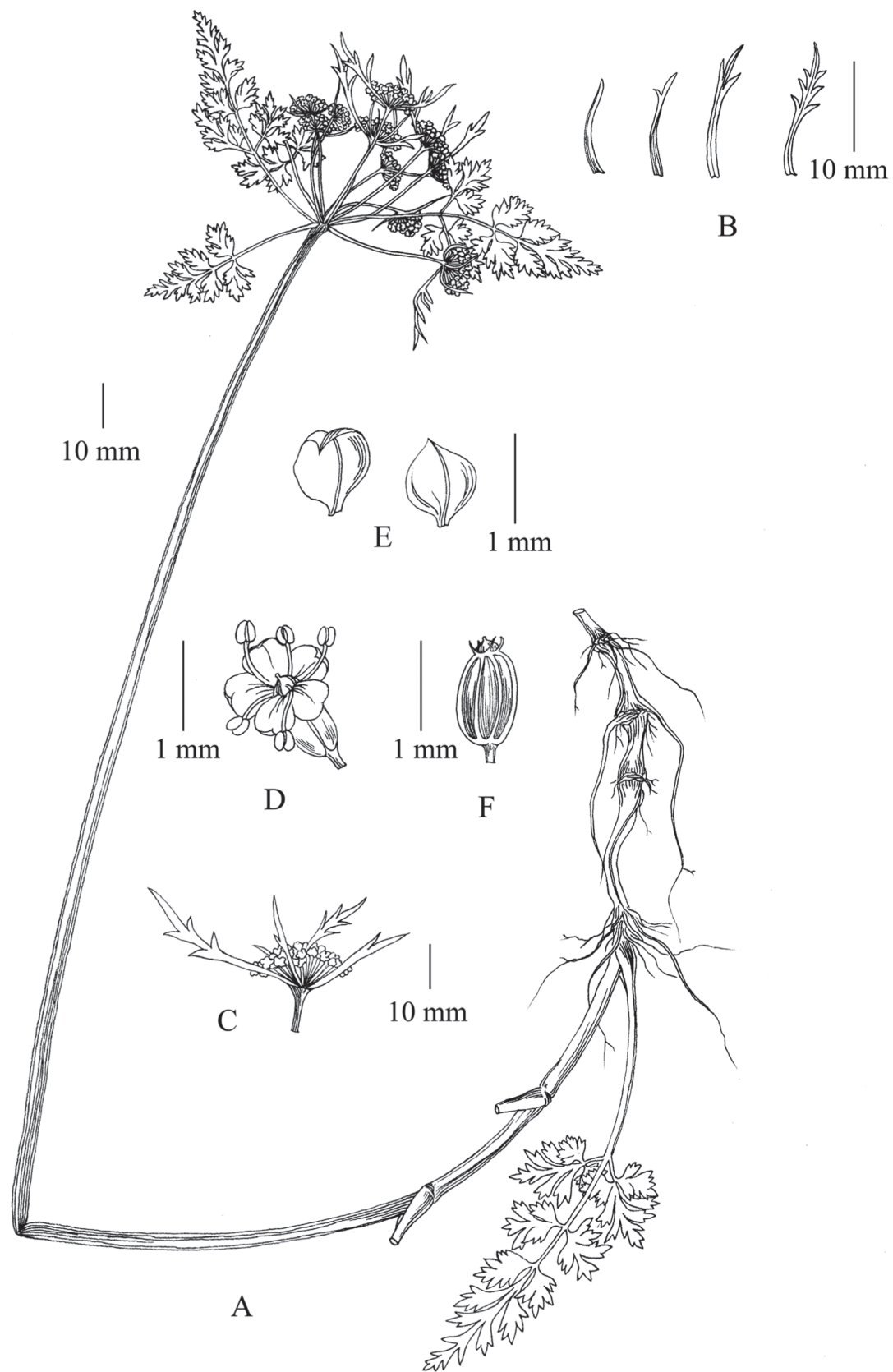


Figure 1. *Ligusticum gongshanense* sp. nov. (A) habit, (B) bracteoles, (C) umbellule, (D) flower, (E) petals (dorsal and ventral view), (F) fruit. Drawn by Rongmei Zhang from the holotype.

**Similar species**

*Ligusticum gongshanense* Pu, R. Li & H. Li is closely similar to *L. franchetii* H. de Boissieu by its petiolate basal leaves, cauline leaves similar to the basal, absent bracts, and conspicuous calyx teeth, but differs by having unbranched and light yellow stem, bracteoles longer than umbellules, white petals, and styles shorter than stylopodium. The major differences between these species are outlined in Table 1.

**Etymology**

The specific epithet of the new species refers to its type locality.

Table 1. Morphological comparison of *Ligusticum gongshanense* sp. nov. and *L. franchetii*.

Characters	<i>L. gongshanense</i>	<i>L. franchetii</i>
Stem	single, unbranched, light yellow	branched, purplish
Bracteoles	twice as long as umbellules	equaling or slightly longer than umbellules
Petals	white	purplish
Styles	shorter than stylopodium	longer than stylopodium

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