



Cremanthodium lingulatum (Asteraceae, Senecioneae) is merged with *C. pseudo-oblongatum*

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Abstract

Critical observations on both herbarium specimens (including type material) and living plants demonstrate that *Cremanthodium lingulatum* and *C. pseudo-oblongatum* (Asteraceae, Senecioneae) are conspecific. We therefore place the former into the synonymy of the latter. Lectotypification is proposed for *C. pseudo-oblongatum*.

Key words: Compositae, taxonomy, Xizang

Introduction

Cremanthodium lingulatum Liu (1984: 57) was described on the basis of three collections from southeastern Xizang (Tibet), China, namely *Qinghai-Xizang Suppl. Exped. 75-1044* (HNWP, KUN, PE; Fig. 1) and *P.C. Kuo & W.Y. Wang 23248* (HNWP; Fig. 2A), both from Nyingchi, and *Xizang Med. Plant Exped. 4019* (HNWP, PE; Fig. 2B–D) from Mainling, with an HNWP sheet (herbarium no. 51663; Fig. 1A) of the first collection designated as the holotype. In the protologue, the author stated that the new species is related to *C. helianthus* (Franchet 1892: 286) Smith in Staff of the Royal Botanic Garden Edinburgh (1924: 289) but differed by having basal leaves lingulate-spatulate, rotund at apex, cuneate at base, stem leaves sessile, erect, lingulate-oblong, involute, amplexicaul, obtuse-rotund at apex, and 2–3 linear bracteoles below the capitula. After its original description, *C. lingulatum* was recognized by Liu (1985, 1989) and Liu & Illarionova (2011).

Cremanthodium helianthus is distributed in southern and southwestern Sichuan (Muli, Puge) and northwestern Yunnan (Heqing, Weixi, Zhongdian), China. It is indeed similar to *C. lingulatum* in being glabrous and grayish green, but readily distinguishable, among other characters, by having several ovate-lanceolate or broadly elliptic leaf-like bracteoles usually surrounding the capitulum (Figs. 3, 4). The morphological characters of *C. lingulatum* are actually reminiscent of those of *C. pseudo-oblongatum* Good (1929: 297) (Figs. 5–7), a species of the Himalayan region. Most notably, the type gathering of *C. pseudo-oblongatum*, *F. Kingdon-Ward 5931* (BM, E, K; Fig. 5), was also collected from Nyingchi in southeastern Xizang, the type locality of *C. lingulatum*.

Cremanthodium pseudo-oblongatum is highly variable in leaf shape. The basal leaves are ovate-oblong, oblong or elliptic in outline, subtruncate to subcuneate or occasionally very shallowly cordate at base (Fig. 8). The stem leaves are often sessile, erect, lingulate-oblong, and amplexicaul (Fig. 6F). In leaf shape *C. lingulatum* lies totally within the variation range of *C. pseudo-oblongatum* and in other characters they are also not essentially different. One or two bracteoles below the capitulum are often linear-lanceolate, not surrounding the capitulum (Fig. 7C). It seems that when Liu (1985) described *C. lingulatum* as new he overlooked *C. pseudo-oblongatum*, and that he was unaware that all the type specimens of *C. lingulatum* include only a generative stem with a terminal capitulum, with the vegetative rosettes having been detached (Figs. 1, 2). The leaves of the generative stems are quite different in shape from those of the vegetative rosettes (Figs. 5, 6B–D).



FIGURE 1. Holotype (A) and isotype (B–D) sheets of *Cremanthodium lingulatum* (= *C. pseudo-oblongatum*).



FIGURE 2. Paratype sheets of *Cremanthodium lingulatum* (= *C. pseudo-oblongatum*).

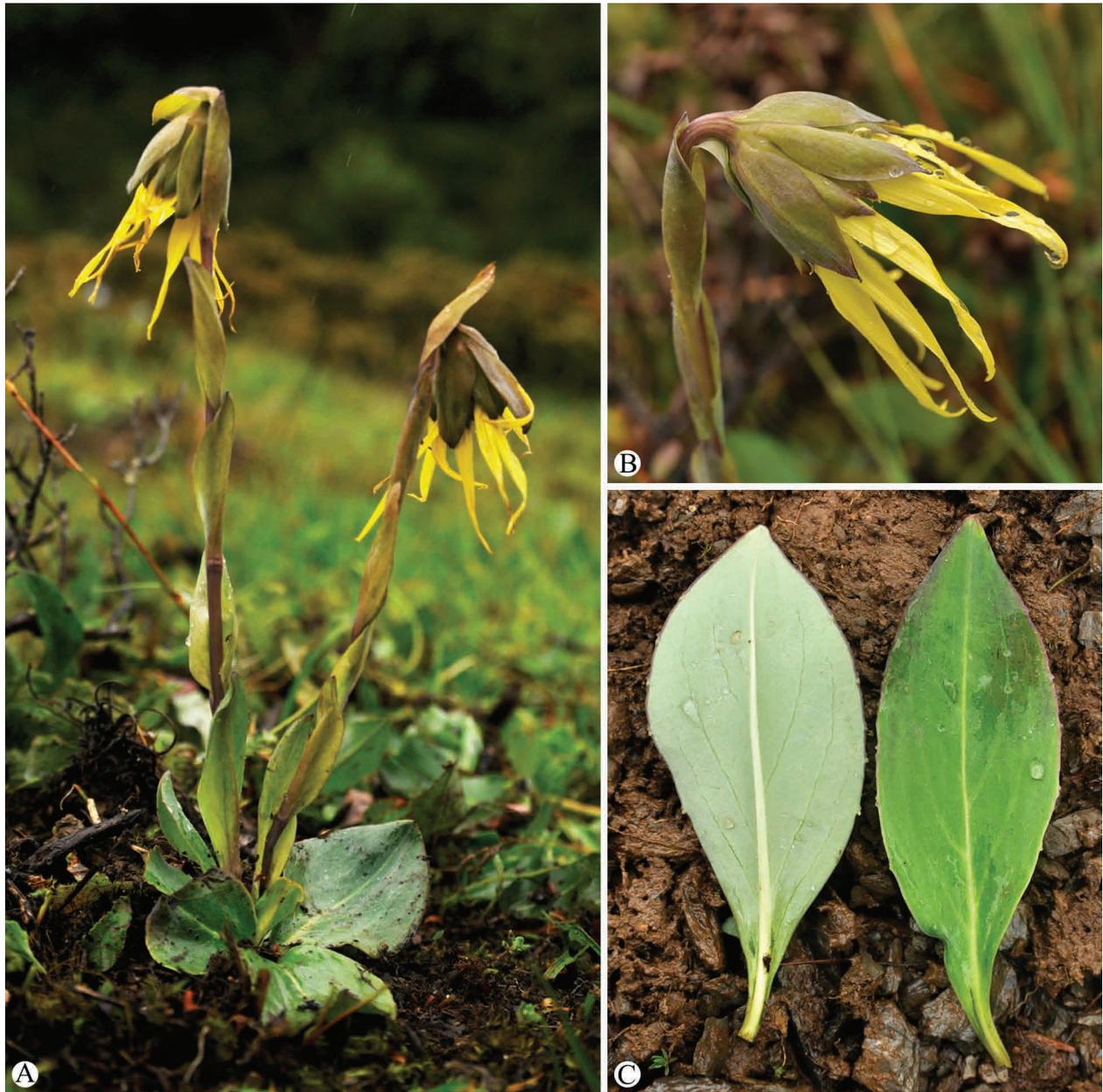


FIGURE 4. *Cremanthodium helianthus* in the wild (China, Yunnan, Zhongdian). A. Habit. B. Capitulum. C. Basal leaves (left: abaxial surface; right: adaxial surface).

In the protologue of *Cremanthodium pseudo-oblongatum*, Good (1929) designated *F. Kingdon-Ward 5931* as the type, but he did not specify the herbarium in which the type was conserved. There are three sheets of this collection kept respectively in BM, E, and K (the E, K sheets are shown in Fig. 5). As the sheet kept in E was annotated by Good and matches well the original description (e.g. the number of capitula), here we designate it as the lectotype of *C. pseudo-oblongatum*.

Taxonomic treatment

Cremanthodium pseudo-oblongatum Good (1929: 297). Figs. 1, 2, 5–7.

Type:—CHINA. Xizang: Nyingchi, Tumbatse (= Dongbacai), 10000–11000 feet (= 3000–3300 m) a.s.l., 13 July 1924, *F. Kingdon-Ward 5931* (E00413148!), lectotype designated here; isoelectotypes BM!, K!). Fig. 5.

= *Cremanthodium lingulatum* Liu (1984: 57), **syn. nov.**

Type:—CHINA. Xizang: Nyingchi, western slope of Sejila Shan, 4300 m a.s.l., 2 August 1975, *Qinghai-Xizang Suppl. Exped. 75-1044* (holotype HNWP!; isotypes HNWP!, KUN!, PE!). Fig. 1.



FIGURE 5. Lectotype (A) and isolectotype (B) sheets of *Cremanthodium pseudo-oblongatum*.

Perennial herbs, grayish green, glabrous. Rhizome short, surrounded by remains of withered petioles. Stems erect, to 60 cm tall, ca. 3 mm in diameter at base. Basal leaves more or less petiolate or sessile; petiole to 10 cm long, slender, base sheathed; leaf blade ovate-oblong, oblong or elliptic, 2.5–12 cm long, 1.4–8 cm wide, pinnately veined, adaxially bright green, abaxially grayish green, base subtruncate, subcuneate or occasionally very shallowly cordate, apex rotund, obtuse or acute, margin entire or slightly mucronate; pinnate veins slightly sunken adaxially, slightly prominent abaxially. Stem leaves 2–6; proximal stem leaves smaller than basal leaves, sessile or shortly petiolate, erect; leaf blade usually lingulate-spatulate or lingulate-oblong, margin entire, base amplexicaul; middle and distal stem leaves sessile, leaf blade ovate-oblong or oblong, tubular-amplexicaul, margin entire, apex acute or acuminate. Leaf-like bracteoles below capitulum 1 or 2, often linear-lanceolate. Capitula 1–3 (–4), nodding, solitary or arranged in a lax raceme. Involucre hemispheric, ca. 1.5 cm high, 1.5–2 cm in diameter, grayish green, outside glabrous; phyllaries 11–14, in 2 rows; outer ones lanceolate or ovate-lanceolate, 2–4 mm broad, margin entire, apex acuminate; inner ones oblong, 5–7 mm broad, margin membranous, apex acute or obtuse. Ray florets 8–12, yellow; lamina linear-lanceolate, 1.5–3 cm long, ca. 3–5 mm broad, apex acute to acuminate; tube ca. 2 mm long. Tubular florets numerous, yellow, 1–1.5 cm long; tube ca. 2 mm long; limb ca. 5 mm long. Achenes dark brown, oblong, 3–5 mm long. Pappus white, 5–8 mm long, as long as or longer than tubular corolla.

Distribution and habitat:—*Cremanthodium pseudo-oblongatum* is distributed in southeastern Xizang, China (Fig. 9). It grows in alpine meadows or alpine scrub at elevations between 3300–5000 m above sea level.

Phenology:—Flowering July to August; fruiting September.

Additional specimens examined:—CHINA. Xizang: Bomi, B.S. Li & S.Z. Cheng 00689 (PE), Qinghai-Xizang Veget. Exped. 10092 (PE), G.C. Xia & T.K. Mi 726 (PE), T.S. Ying & D.Y. Hong 65-1010 (PE); Gongbo'gyamda, F. Ludlow et al. 15475 (E), F. Ludlow et al. 15786 (E); Mainling, F. Ludlow et al. 5993 (E), Xizang Med. Plant Exped. 4019 (HNWP, PE); Nyingchi, Anonymous 2264 (PE), Y.S. Chen & Z.H. Wang 9382 (KUN, PE), B.Z. Kuo & W.Y. Wang 23248 (HNWP), F. Ludlow et al. 5101 (E), J. Luo et al. 049 (KUN), L. Wang et al. 1034 (IBSC), G. Yao 2200 (NAS), W.L. Zhen 0198 (XZE).

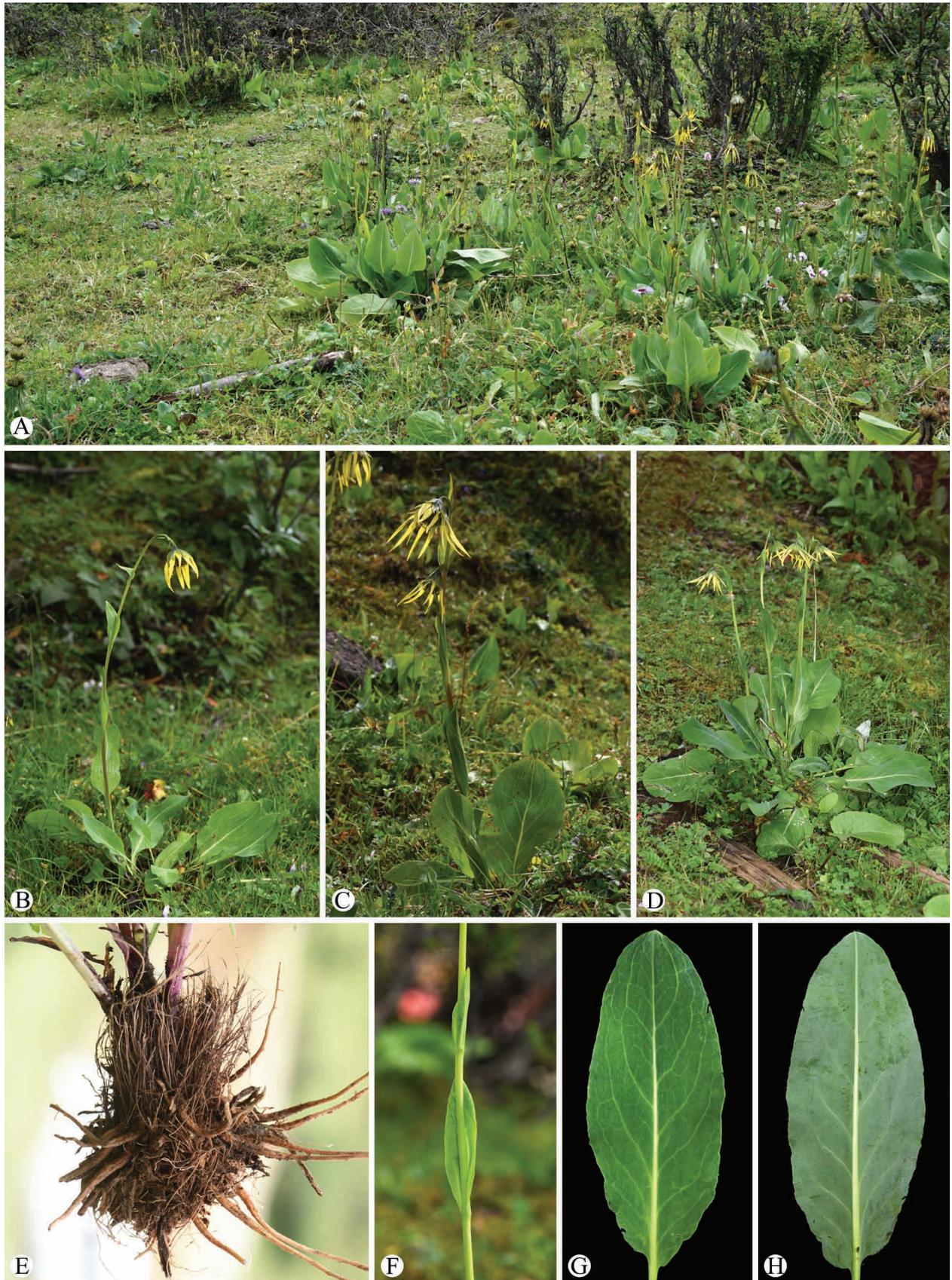


FIGURE 6. *Cremanthodium pseudo-oblongatum* in the wild (China, Xizang, Nyingchi). A. Habitat. B–D. Habit. E. Rhizome. F. Portion of stem. G. Leaf blade (adaxial surface). H. Leaf blade (abaxial surface).

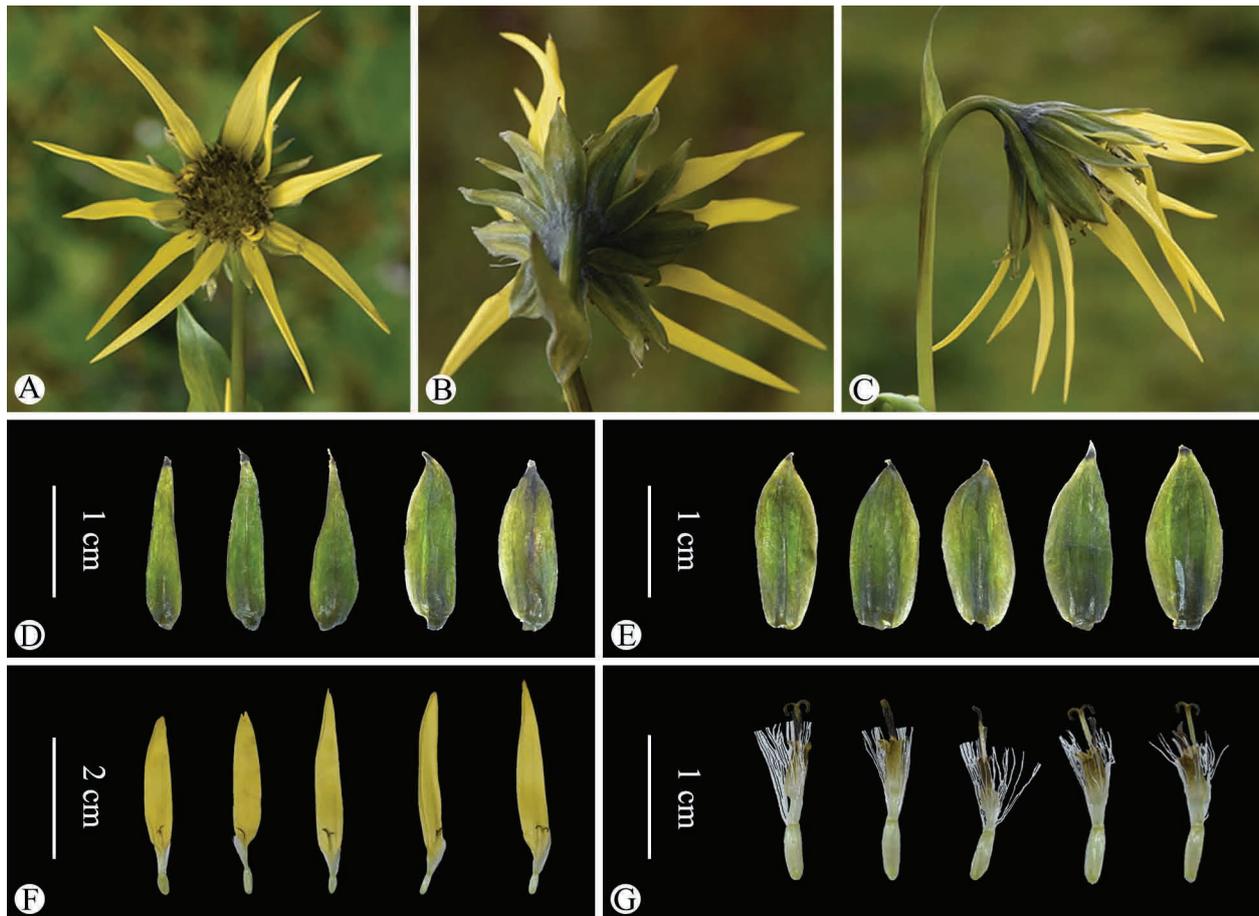


FIGURE 7. *Cremanthodium pseudo-oblongatum* in the wild (China, Xizang, Nyingchi). A. Capitulum (top view). B. Capitulum (back view). C. Capitulum (side view). D. Outer phyllaries (abaxial surface). E. Inner phyllaries (abaxial surface). F. Ray florets. G. Tubular florets.

Notes:—In his account of *Cremanthodium* Bentham (1873: 37) in the *Flora Reipublicae Popularis Sinicae*, Liu (1989) placed *C. pseudo-oblongatum* to *C. sect. Pinnatinervia* (“*Pinnatinervus*”) Ling & Liu in Liu (1982: 51) ser. *Oblongata* Ling & Liu in Liu (1989: 145). From a morphological perspective, this species may better be transferred to *C. sect. Pinnatinervia* ser. *Glauca* Ling & Liu in Liu (1989: 140).

Cremanthodium glaucum Handel-Mazzetti (1937: 641), a species in northwestern Yunnan (Weixi, Zhongdian), is most closely similar to *C. pseudo-oblongatum*, differing slightly only in the shape and length of the ray lamina (lanceolate, 1–2.6 cm long vs. linear-lanceolate, 1.5–3 cm long). Another species, *C. yadongense* Liu (1984: 62), which is currently known only from the holotype (*P.C. Tsoong 5832*; PE) collected from Yadong in southern Xizang, is also most closely similar to *C. pseudo-oblongatum*. Both species differ mainly in the pubescence of stem and involucre and the shape of leaf base. In *C. yadongense*, the stem is brown pubescent distally, the involucre is abaxially brown pubescent at base, and the leaf base is often obviously cordate. In *C. pseudo-oblongatum*, both the stem and involucre are glabrous, and the leaf base is only occasionally very shallowly cordate. As a result, the occurrence of *C. pseudo-oblongatum* in the western Himalaya, northern India (Sikkim) and Bhutan (Good 1929, Grierson & Springate 2001) remains to be verified. The specimens from these regions previously referred to *C. pseudo-oblongatum*, such as *R. Lepcha 505* (E; cited as a paratype of *C. pseudo-oblongatum*) from Sikkim, seem to match perfectly the holotype of *C. yadongense* in all characters. The type locality of *C. yadongense*, i.e. Yadong in southern Xizang, is contiguous to Sikkim. Indeed, further studies, particularly observations on living plants in the field, are needed to clarify the relationships between *C. glaucum*, *C. pseudo-oblongatum* and *C. yadongense*.

Marquand (1929) referred the type collection of *C. pseudo-oblongatum*, *F. Kingdon-Ward 5931*, to *C. bupleurifolium* Smith (1913: 112), a species distributed in southwestern Sichuan (Muli) and northwestern Yunnan (Dêqên). Hu (1966) also did so, although in the same paper she recognized *C. pseudo-oblongatum* as a separate species and cited *F. Kingdon-Ward 5931* as its type. Morphologically *C. bupleurifolium* differs immediately from *C. pseudo-oblongatum* by the absence of pappus.

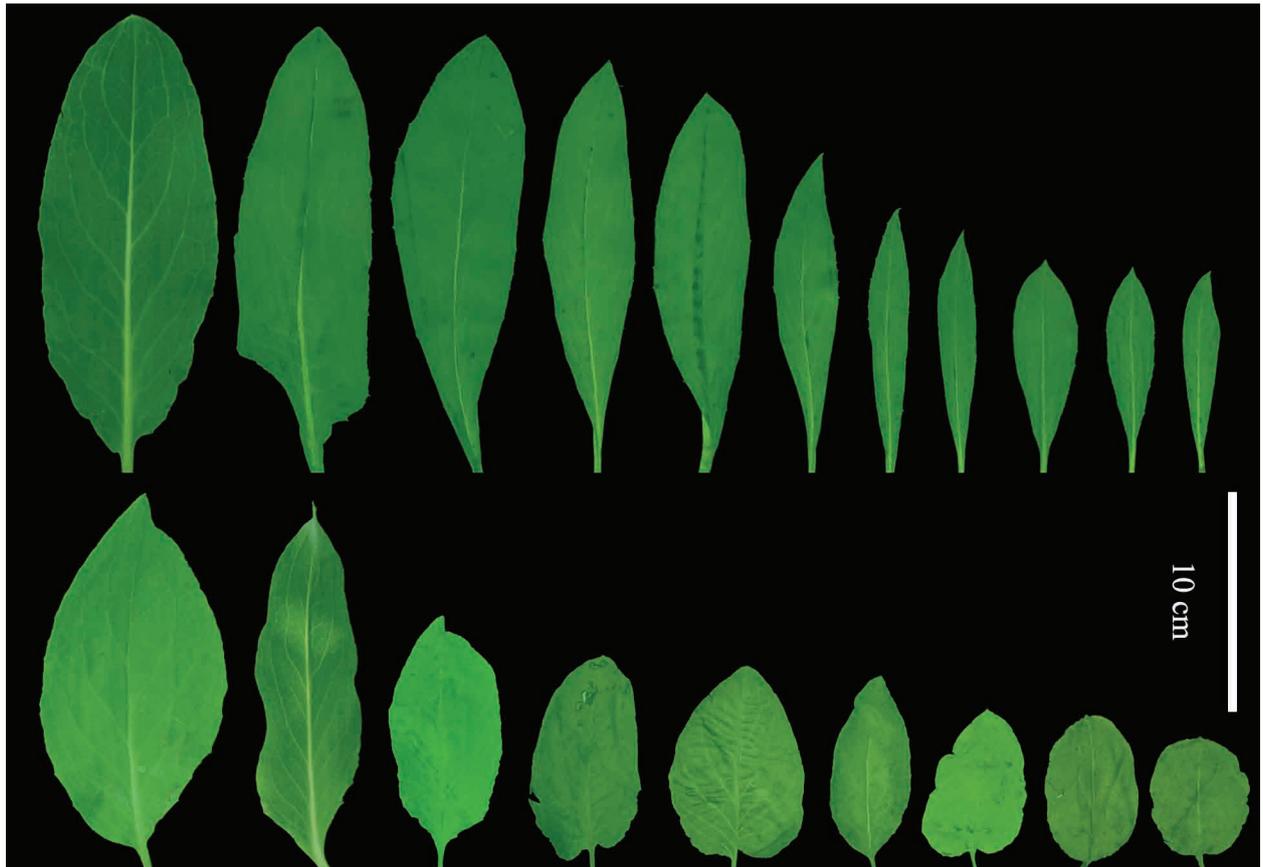


FIGURE 8. Basal leaves of *Cremanthodium pseudo-oblongatum*.

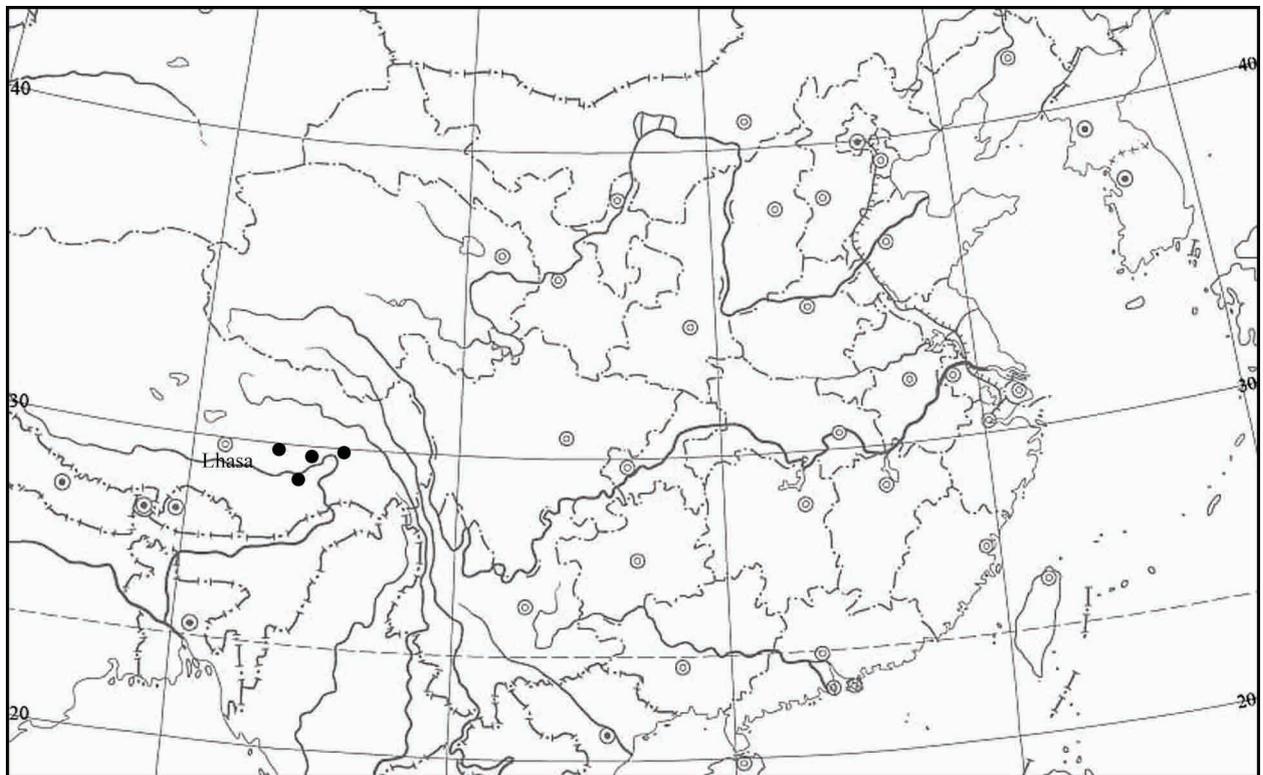


FIGURE 9. Distribution of *Cremanthodium pseudo-oblongatum* (●).

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