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Two new species and one new variety of *Elatostema* (Urticaceae) from China

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On the basis of field collections and herbarium specimen studies, two new species and one new variety are described and illustrated here: *Elatostema bomiense* W.T. Wang & Zeng Y. Wu, *E. daxinense* W.T. Wang & Zeng Y. Wu and *E. daxinense* var. *septemcostatum* W.T. Wang & Zeng Y. Wu. The morphological differences between the new taxa and their morphologically closest species are also provided.

Elatostema is the second largest genus in Urticaceae, with approximately 500 species distributed in the tropical and subtropical regions of Africa, Asia and Oceania (Chen *et al.* 2003, Wang 2012). The genus is characterised by its determinate capitulum and the tepals of female flowers usually strongly reduced or at least shorter than the ovary (Wang 2009, 2010a). According to recent studies, ca. 234 species (205 endemic) are found in the tropical and subtropical regions south of the Qinling Mountains in China, especially in the evergreen broad-leaved forests and other shaded and moist places (Wang 1995, 2012).

Xizang, Guangxi, Yunnan and Guizhou provinces of China are centers of species diversity for *Elatostema* (e.g. Wang 2003, 2006, 2010b, 2010c, 2011a, 2011b, Wang & Wei 2007, Wei & Wang 2009, 2011, Wu *et al.* 2011a, 2011b, 2012). After a critical evaluation of specimens

from Xizang, Guangxi and Yunnan and comparison with morphologically similar species, some of them were found to represent undescribed taxa.

***Elatostema bomiense* W.T. Wang & Zeng Y. Wu, sp. nova (Fig. 1F–I)**

(section *Weddellia*, series *Stipulosa*)

Habitu species nova haec est similis E. gungshanensi, quod foliis subtus sparse strigosis, capitulis pistillis receptacula inconspicuis, oblonga ca. 0.75 mm longa, ferentibus ca. 10-bracteatis, bracteis pistillatis nec costatis nec corniculatis, bracteolis pistillatis viridibus haud semihyalinis minoribus 0.4 mm longis apice longe ciliatis facile distinguitur.

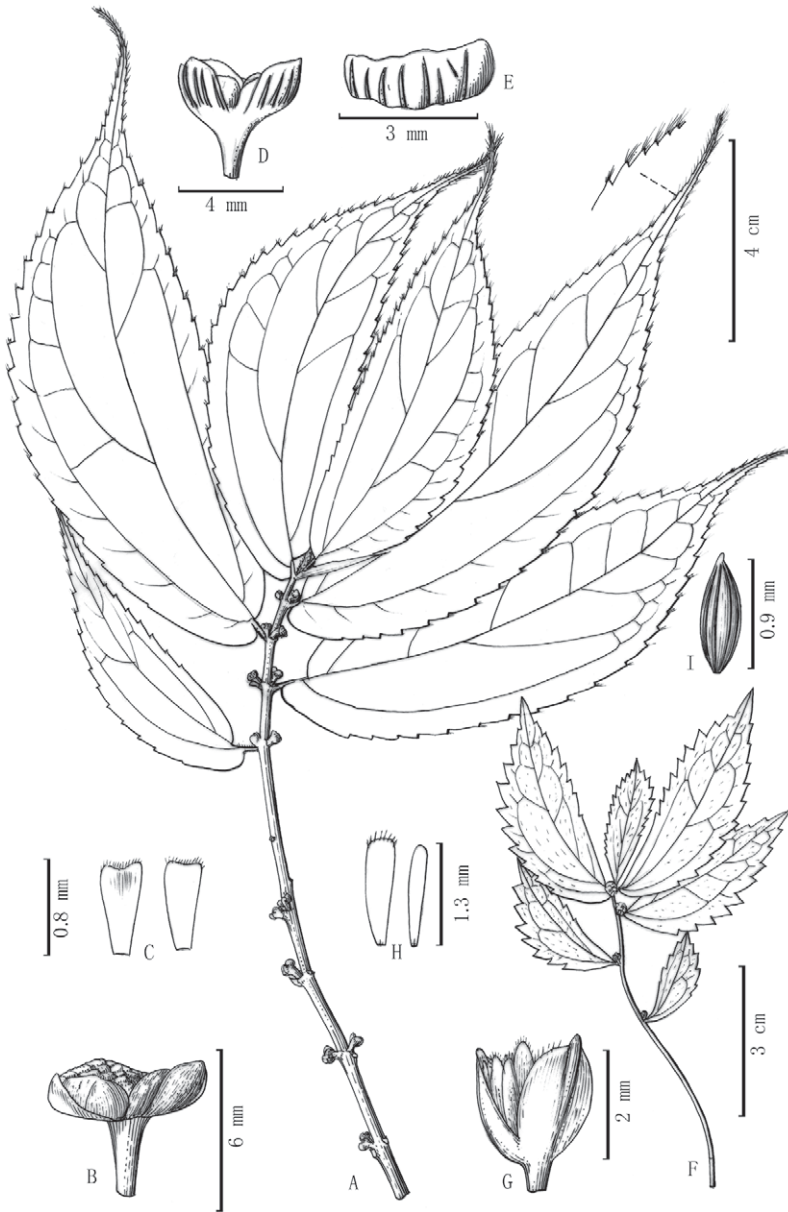


Fig. 1. — **A–C:** *Elatostema daxinense* (from the holotype). **A:** Upper part of flowering staminate branch. **B:** Young staminate capitulum. **C:** Staminate bracteoles. — **D and E:** *Elatostema daxinense* var. *septemcostatum* (from the holotype). — **D:** Young staminate capitulum. **E:** One of two outer larger involucral bracts, abaxial surface. — **F–I:** *Elatostema bomiense* (from the holotype). **F:** Upper part of flowering pistillate stem. **G:** Pistillate capitulum. **H:** Pistillate bracteoles. **I:** Achene.

TYPE: China. Xizang, Bomi county, Yigong farm, 2500 m, 19 Aug. 1983 *B. S. Li, S. Z. Cheng et al.* 6767 (holotype PE; isotype PE).

Small erect herb, 10–20 cm tall, above 1–2 mm thick, glabrous throughout or sparsely puberulous above, unbranched. Stipules membranous, narrowly triangular. Leaves shortly petiolate, petioles 2–3 mm long; leaf blade thinly papery, obliquely narrowly elliptic or narrowly obovate, 4–7 × 1–2.5 cm, adaxial surface stri-

gose, abaxial surface densely short strigose, cystoliths conspicuous, dense, bacilliform, 0.1–0.3 mm long, trinerved, lateral nerves ca. 4-paired, base at broad side nearly auriculate, at narrow side narrowly cuneate, margin serrate or denticulate, apex acuminate. Staminate inflorescence not known. Pistillate capitula single, axillary, 4–5 mm in diameter; peduncle ca. 1–2 mm long; receptacle obscure; bracts 2, rounded or triangular-ovate, 2–2.2 × 1.6–2 mm, above middle

on abaxial surface longitudinally 1-ribbed, rib apices extending out into short horn-like projections ca. 0.2 mm long, apex ciliate, cilia 2–3, or glabrous; bracteoles numerous, very dense, semihyaline, whitish, oblong, cuneate-oblong, or linear, 1–1.5 mm long, with a few cilia or glabrous. Achene brown, narrowly ellipsoid, $0.8 \times 0.2\text{--}0.3$ mm, longitudinally 6(–7)-ribbed.

Elatostema bomiense is sparse in *Quercus* forests at ca. 2500 m a.s.l. in Bomi county of Xizang, China. It is morphologically similar to *E. gungshanense*, e.g. Lin and Duan (2002) confused them. However, *E. bomiense* differs from *E. gungshanense* by its leaves being densely short-strigose on the abaxial surface, by its pistillate capitula which has an obscure receptacle, and by its two, rounded or triangular-ovate bracts that are longitudinally 1-ribbed and corniculate. In *E. gungshanense*, the leaf blades are sparsely short-strigose on the abaxial surface, the receptacle of the pistillate capitula is conspicuous, oblong, 0.75 mm long, and there are ten pistillate bracts per capitulum, lacking longitudinal ribs and horn-like projections on the abaxial surface (Wang & Chen 1995).

***Elatostema daxinense* W.T. Wang & Zeng Y. Wu, sp. nova (Fig. 1A–C)**

(section *Elatostema*, series *Cuspidata*)

Species nova haec est arcte affinis E. platyphylo, quod foliis glabris et auriculas basales majores 10–14 mm longas ferentibus, capitulis staminatis receptacula cystolithis carentia ferentibus et involucris destitutis facile recedit.

TYPE: China. Guangxi, Daxin county, Shuolongdetian waterfall, 29 Nov. 1993 J. R. Chen & Y. Z. Wang 93121 (holotype PE; isotype PE).

Perennial herb. Stems erect, 40–70 cm tall, 3–4.5 mm thick near base, antrorsely puberulous, at middle or above longitudinally and shallowly 6–8-sulcate, unbranched, with very dense minute cystoliths 0.1–0.2 mm long. Stipules caducous; leaves shortly petiolate, petioles 1–3 mm long, glabrous; leaf blade papery, obliquely oblong, $8\text{--}17 \times 3\text{--}7$ cm, adaxial surface glabrous, abaxial surface hirsute on veins, cystoliths conspicu-

ous, dense, bacilliform, 0.1–0.3 mm, trinervious, lateral nerves 3- or 4-paired, base on broad side auriculate (auricle 1–2 mm long), on narrow side rounded or obtuse, margin denticulate, apex caudate (tails 0.8–2.7 cm long, minutely denticulate at margin). Young staminate capitula in pairs, axillary and extra-axillary, ca. 4 mm in diameter; peduncle ca. 2 mm long, glabrous, with some cystoliths; receptacle subrectangular, glabrous, 2-lobulate, cystoliths dense and thick, 0.2–0.4 mm long; bracts green, 6, 2-seriate, 2 outer bracts slightly larger than 4 inner bracts, all depressed-ovate, 1×2.5 mm, glabrous, with cystoliths dense; bracteoles numerous, obtrapezoid, 2×2 mm, membranous, apex subtruncate, ciliate, most semihyaline, whitish, abaxially longitudinal 1-green-ribbed.

Elatostema daxinense has only been collected from Guangxi Province, and it usually grows along moist roadsides. It is similar to *E. platyphyllum*, from which it however differs by its leaves covered with long, rigid hairs on the abaxial nerves, and with smaller basal auricles, and by its staminate capitula which have receptacles with cystoliths and well-developed involucre. In *E. platyphyllum* the leaves are glabrous and have larger basal auricles 10–14 mm long, and the staminate capitula have receptacles lacking cystoliths and devoid of involucre (Wang 1995).

***Elatostema daxinense* var. *septemcostatum* W.T. Wang & Zeng Y. Wu, var. nova (Fig. 1D–E)**

A var. daxinensi differt foliis supra strigosis, capituli staminati pedunculo et receptaculo cystolithis sparsioribus tenuioribus et minoribus 0.1–0.2 mm longis praedito, ejus bracteis duabus externis majoribus longitudinaliter 7-atro-costatis.

HOLOTYPE: China. Yunnan, Mengla county, Xishuangbanna tropical botanical garden, valley of rain forest, 31 Jan. 2002 Q. H. Li 460 (PE).

Perennial, erect herb, 80 cm tall, 3–4.5 mm thick near base, antrorsely puberulous, at middle or above longitudinally and shallowly 6–8-sulcate, unbranched, with cystoliths very dense,

minute, 0.1–0.2 mm long. Stipules caducous; leaves shortly petiolate, petioles 1–3 mm long, glabrous; leaf blade papery, obliquely oblong, 8–17 × 3–7 cm, adaxial surface strigose, abaxial surface hirsute on veins, cystoliths conspicuous, dense, bacilliform, 0.1–0.3 mm, trinervious, lateral nerves 3–4-paired, base at broad side auriculate (auricle 1–2 mm long), at narrow side rounded or obtuse, margin denticulate, apex caudate or caudate-acuminate (tails 0.8–2.7 cm long, minutely denticulate at margin). Young staminate capitula in pairs, axillary and extra-axillary, ca. 4 mm in diameter; peduncle ca. 2 mm long, glabrous; receptacle subrectangular, glabrous, 2-lobulate; bracts green, 6, 2-seriate, 2 outer larger which abaxially thinly 7-ribbed, 4 inner slightly smaller, all depressed-ovate, 1 × 2.5 mm, glabrous; bracteoles numerous, obtrap-ezoid, 2 × 2 mm, membranous, apex subtruncate, ciliolate, most semihyaline, whitish, abaxially longitudinal 1-green-ribbed.

This variety has only been found near a moist roadside in the rain forest of the Xishuangbanna tropical botanical garden. It differs from the type variety by its adaxially strigose leaves, by its peduncle, receptacle and bracts of staminate capitulum all lacking cystoliths, and by its two outer larger, abaxially and thinly 7-ribbed bracts of staminate capitulum (Wang & Chen 1995).

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