

## Two new species of *Elatostema* (Urticaceae) from Guangxi, China

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Two new species of *Elatostema* from Guangxi, China are described and illustrated. They are *E. sexcostatum* W.T. Wang, C.X. He & L.F. Fu, which is morphologically most similar to *E. balansae*, and *E. oligophlebium* W.T. Wang, Y.G. Wei & L.F. Fu, which is morphologically most similar to *E. obtusum* and *E. crassiusculum*.

*Elatostema* (Urticaceae) consists of herbs, small shrubs or subshrubs that grow in the deep shady place of forests, stream sides, caves and gorges. There are at least 340 species (Lin *et al.* 2003, Wang 2006, 2010a, 2010b, 2011, Wang & Wei 2007, 2008, Lin & Duan 2008, Wei & Wang 2009, Duan & Lin 2010, Wei *et al.* 2011, Wu *et al.* 2011) distributed throughout tropical and subtropical Africa, Asia and Oceania. More than 185 species are identified in China (Wang 1995, 1997, 2003, 2006, 2010a, 2010b, 2011, Wang & Wei 2007, 2008, Lin & Duan, 2008, Wei & Wang 2009, Duan & Lin 2010, Wei *et al.* 2011, Wu *et al.* 2011).

Jingxi County, Guangxi lies between 23°78'N and 106°25'E, and has a subtropical monsoon climate. The mean annual temperature is 19.1 °C and the annual rainfall is 1600 mm. Longlin County, Guangxi lies between 24°48'N and 105°20'E and has a subtropical high mountain climate. The mean annual temperature there is 19.1 °C and the annual rainfall is 1144.6 mm.

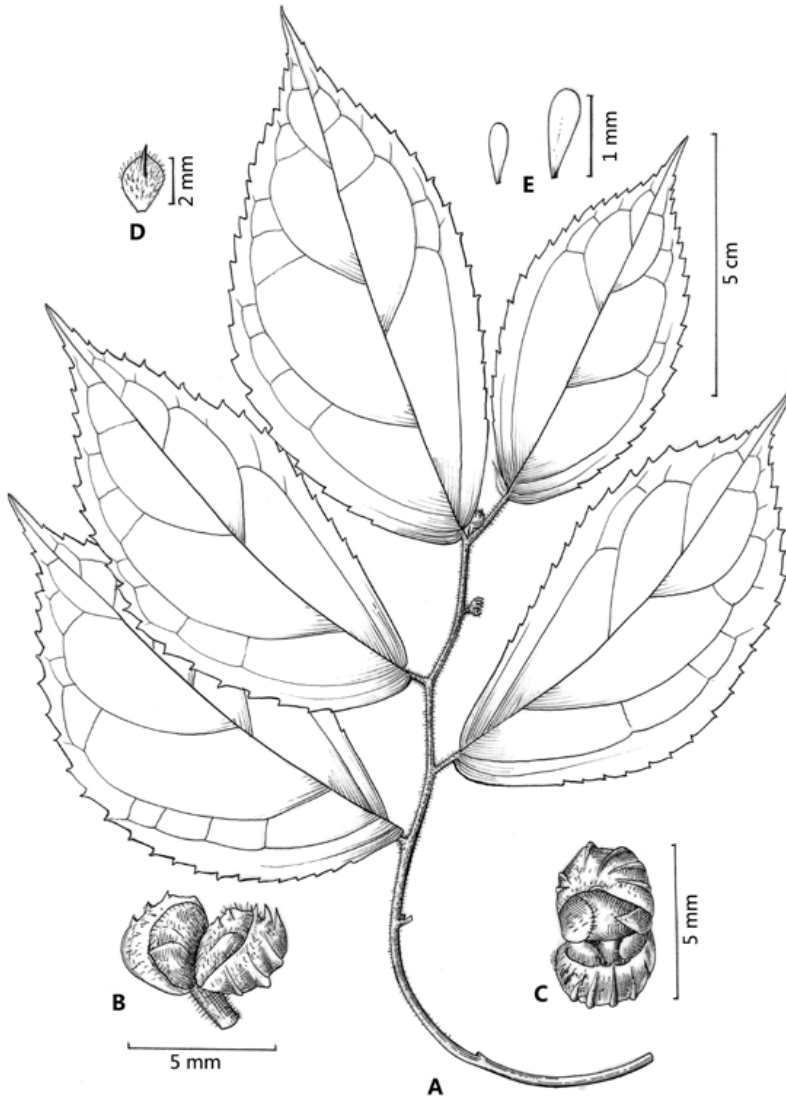
During fieldwork in Jingxi and Longlin Counties of Guangxi in the recent years, two distinct, undescribed species of *Elatostema* were collected. One of them is most morphologically similar to *E. balansae* and the other one resembles *E. obtusum* and *E. crassiusculum*.

### *Elatostema sexcostatum* W.T. Wang, C.X. He & L.F. Fu, *sp. nova* (Fig. 1)

TYPE: China. Guangxi: Jingxi County, Ande town, 23°15'22"N, 106°1'42"E, 730 m a.s.l., 21 March 2009, Y. G. Wei *g061* (holotype IBK!; isotypes BJFC!, PE!).

ETYMOLOGY: *Elatostema sexcostatum* is named after the staminate major bracts with six ribs. — Vernacular name: liule louticao.

Perennial herb, terrestrial, dioecious? Not tuber-forming. Stems ca. 500 × 5 mm, erect, not succulent, dark green, branched, densely hispid, hairs ca. 1 mm long, internodes 10–40 mm long. Stipules 2 at each node, caducous,



**Fig. 1.** *Elatostema sexcostatum* (from the holotype, drawn by Ying-Bao Sun). — **A:** Flowering stem. — **B:** Staminate capitulum. — **C:** Inner staminate bract. — **D:** Staminate bract with hairs and corniculate appendage. — **E:** Staminate bracteoles.

membranous, narrowly lanceolate, ca.  $6.0 \times 1.5$  mm, sparsely pubescent, hairs ca. 0.5 mm long, weakly curved. Leaves distichous, alternate, terminal pair of leaves subopposite, subsequent leaves subequal, short petiolate, petioles  $2.0\text{--}3.5 \times 1.0$  mm, glabrous; laminae  $75\text{--}105 \times 34\text{--}48$  mm, length/width ratio 2.1–2.2/1, asymmetrically oblique elliptic, chartaceous, major lateral veins asymmetric, one basal, other arising above base, broader-half lateral nerve ca. 4,  $45^\circ\text{--}60^\circ$  to midrib, narrower-half lateral nerve ca. 3,  $45^\circ\text{--}60^\circ$  to midrib; upper surface drying dark green, sparsely hispid, hairs ca. 1 mm long, weakly curved, appressed, cystoliths densely dis-

tributed, bacilliform, 0.2–0.35 mm long, lower surface drying green, nerves densely hispid, hairs ca. 1 mm long, weakly curved, cystoliths absent, base asymmetrical, broader-half rounded and narrower-half cuneate; margin serrate, teeth spaced 3–5 mm long apart, apex acuminate, serrate. Staminate inflorescences solitary, axillary, ca. 5 mm wide, capitulum, bearing ca. 4 flowers; peduncle  $1.0\text{--}1.5 \times 1.3\text{--}1.5$  mm, densely hispid, hairs ca. 0.1 mm long, ebracteate (bracts not seen); receptacle ca.  $4.0 \times 2.0$  mm, oblong, glabrous, dark green above and below, subtended by marginal bracts, bracts borne perpendicular to receptacle, bracts unequal, sparsely pubescent,

hairs ca. 0.1 mm long, outer 2 bracts major, opposite to each other, ca.  $2.0 \times 3.2$  mm, ovoid, 6 longitudinal ribbed, subapical appendage ca. 0.5 mm long, corniculate, inner 4 bracts minor, ca.  $2.0 \times 2.0$  mm, obovate, with 1 ribbed, subapical appendage ca. 0.3 mm long, corniculate. Staminate flowers young, bracteoles many, 0.6–1.0 mm long, membranous, semitransparent, narrowly obovate or oblanceolate, glabrous. Pistillate inflorescences not seen.

**DISTRIBUTION:** Known only from the type locality in Jingxi County, Guangxi, South China at an elevation of ca. 730 m. This species is growing on the ground in limestone ravines.

*Elatostema sexcostatum* is morphologically similar to *E. balansae*, but differs in stem surface, staminate major bracts, staminate bracteoles as summarized in Table 1.

When examining specimens of *E. balansae* including AM6823 from Hezhou City, Guangxi, AM6667 from Fengshan County, Guangxi, WEI058 and WF1187 from Jingxi County, Guangxi and 06685 from Napo County, Guangxi (IBK: AM6823, AM6667, WEI058, WF1187, 06685), we found that the bract of *E. balansae* has only three inconspicuous longitudinal ribs, while *E. sexcostatum* (IBK: g061) has six conspicuous longitudinal ribs.

***Elatostema oligophlebium* W.T. Wang, Y.G. Wei & L.F. Fu, sp. nova (Fig. 2)**

**TYPE:** China. Guangxi: Longlin County, Dahongbao Nature Reserve, Dahuadi,  $24^{\circ}58'22''\text{N}$ ,  $105^{\circ}12'42''\text{E}$ , 1200 m a.s.l., 26 March 2009, Y. G. Wei g075 (holotype IBK!; isotypes PE!).

**ETYMOLOGY:** *Elatostema oligophlebium* is named after the small number of nerves in the leaf blade. — Vernacular name: shaomai louticao.

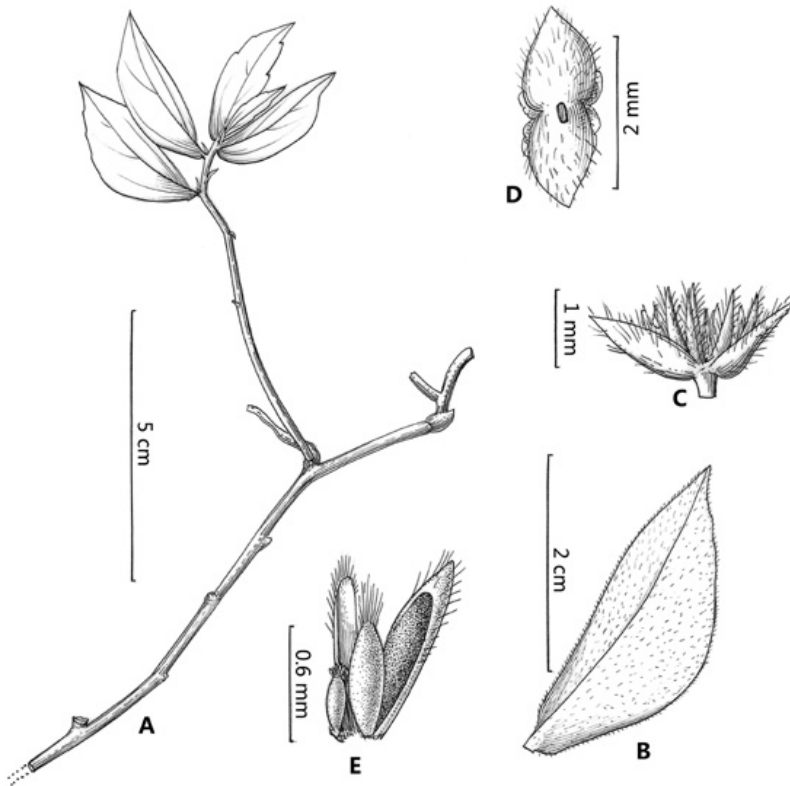
Perennial herb, terrestrial, dioecious? Rhi-

zome horizontally procumbent, elongate, ca. 250 mm long, 1.2–2.0 mm wide, glabrous. Stems  $50\text{--}110 \times 0.5\text{--}0.8$  mm, erect, not succulent, dark green, simple, glabrous, internodes 12–30 mm long. Stipules 2 at each node, membranous, brown, broadly lanceolate,  $2.8\text{--}5.0 \times 0.6\text{--}1.2$  mm, sparsely pubescent, hairs ca. 0.1 mm long, with a green nerve. Leaves distichous, alternate, terminal pair of leaves subopposite, subsequent leaves subequal, sessile or subsessile, ca. 0.6 mm long; laminae  $15\text{--}34 \times 4\text{--}12$  mm, length/width ratio 2.8–3.8/1, asymmetrically oblique elliptic, chartaceous, major lateral veins asymmetric, one basal, other arising above base, broader-half lateral nerve 1 or 2, inconspicuous, ca.  $30^{\circ}$  to midrib, narrower-half lateral nerve 1 or absent, ca.  $30^{\circ}$  to midrib; upper surface drying dark green, glabrous, cystoliths densely distributed, bacilliform, 0.1–0.5 mm long, lower surface drying green, sparsely hispid, hairs ca. 0.5 mm long, weakly curved, cystoliths absent, base asymmetrical, broader-half auriculate and narrower-half obliquely cuneate; margin entire or denticulate, basal  $\leq 1/2$  entire, teeth spaced ca. 1 mm long apart, apex acuminate or acute. Staminate inflorescences not seen. Pistillate inflorescence solitary, axillary, ca. 2.4 mm wide, capitate, bearing ca. 7 flowers in a subsessile, peduncle ca. 0.3 mm long, ebracteate?; receptacle small, inconspicuous, bracts 2, opposite, subequaling, ca.  $1.2 \times 1.0$  mm, broadly triangular, sparsely hispid, hairs ca. 0.1 mm long, base connate. Pistillate flowers ca.  $1.0 \times 1.0$  mm, subsessile; bracteoles ca. 10, equal, ca. 1.0 mm long, 0.2–0.6 mm wide, linear, plane or apex cucullate or cymbiform, apex sparsely strigose. Tepals inconspicuous, pistil 0.3–0.85 mm long, ovary 0.25–0.6 mm long, ovoid, stigma 0.05–0.25 mm long. Infructescences not seen.

**DISTRIBUTION:** Known only from the type locality in Longlin County, Guangxi, South China at an elevation of ca. 1200 m. This spe-

**Table 1.** Morphological comparison between *Elatostema sexcostatum* and *E. balansae*.

Characters	<i>E. sexcostatum</i>	<i>E. balansae</i>
Stem surface	densely hispid	glabrous or sparsely pubescent
Staminate major bracts	6 conspicuous longitudinal ribs	3 inconspicuous longitudinal ribs
Staminate bracteoles shape	narrowly obovate or oblanceolate	linear
Staminate bracteoles surface	major apex cucullate	plane



**Fig. 2.** *Elatostema oligophlebium* (from the holotype, drawn by Ying-Bao Sun). — **A:** Flowering branch. — **B:** Leaf. — **C:** Pistillate capitulum, side view. — **D:** Pistillate capitulum, seen from below. — **E:** Two pistillate bracteoles and two pistillate flowers.

cies is epilithic, growing on limestone in mixed evergreen forests.

*Elatostema oligophlebium* is morphologically most similar to *E. obtusum* and *E. crassiusculum*, but differs in several characters (Table 2).

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**Table 2.** Morphological comparison among *Elatostema oligophlebium*, *E. obtusum* and *E. crassiusculum*.

Characters	<i>E. oligophlebium</i>	<i>E. obtusum</i>	<i>E. crassiusculum</i>
Stem	50–110 mm, erect, glabrous	100–400 mm, decumbent, hispid	45–240 mm, erect, sparsely pubescent
Leaf blade upper surface	glabrous	glabrous or sparsely hispid	sparsely hispid
Leaf blade lower surface	sparsely hispid	glabrous	glabrous
Leaf blade length	ca. 34 mm	ca. 15(–30) mm	15–44 mm
Leaf blade apex	acuminate or acute	obtuse	shortly acuminate or acuminate
Pistillate inflorescences	ca. 7 flowers	1–2 flowers	30 or more flowers
Pistillate bracts	2	2	ca. 8
Pistillate flower bracteoles	ca. 10	absent	numerous
Pistillate flower staminodium	absent	5	absent

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