

## *Elatostema robustipes* (Urticaceae), a new species from Guangxi, and *Pellionia tenuicuspis* (Urticaceae), a new species from Guangdong, China

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*Elatostema robustipes* W.T. Wang, F. Wen & Y.G. Wei and *Pellionia tenuicuspis* W.T. Wang, Y.G. Wei & F. Wen, two new species of Urticaceae from the Guangxi and Guangdong provinces (China), respectively, are described and illustrated. *Elatostema robustipes* most closely resembles *E. balansae*, and *P. tenuicuspis* most closely resembles *P. incisoserrata*.

The genus *Pellionia* (Urticaceae) consists of ca. 70 species or more, and the closely related *Elatostema* has over 350 species (Wang 1980a, 1980b, 1995a, 1995b). The two genera can be easily distinguished by their different male and female inflorescences (cf. Wang 1995a, 1995b, Lin *et al.* 2003, Duan & Lin 2010).

During the fieldwork in China, we collected several previously unknown species of *Elatostema* and *Pellionia*, two of which we describe here. The specimens reported here were examined using Olympus CX41 binocular microscope and lens at 4× to 100× magnifications. The two species were found to be very distinct when compared with specimens of their morphological siblings housed at IBK, PE, KUN, IBSC, HTBC and CDBI. After consulting the relevant literature (Wang 1980a, 1980b, 1995a, 1995b, Murti

1997, Beaman & Cellinese 2004, Wang 2006, Lin 2008, Lin & Duan 2008, Wang & Wei 2008, 2009, Hadiyah & Conn 2009, Wei & Wang 2008, 2009a, 2009b, 2009c, Duan & Lin 2010, Wang 2010, Wei & Wang 2011), we became convinced we found two undescribed species.

***Elatostema robustipes* W.T. Wang, F. Wen & Y.G. Wei, *sp. nova* (Fig. 1)**

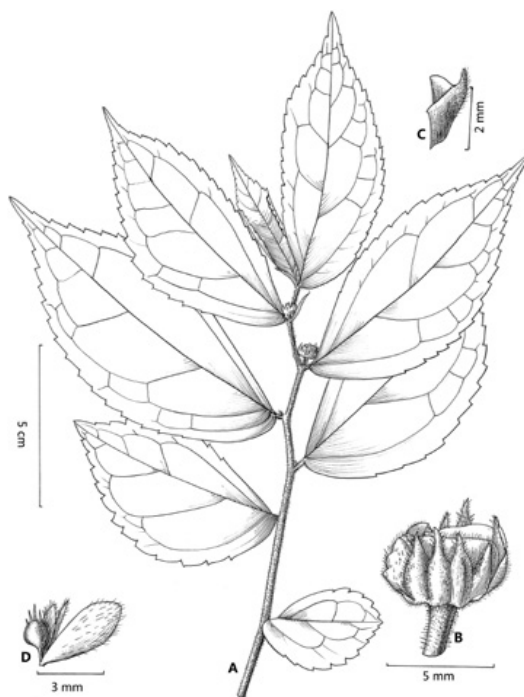
TYPE: China. Guangxi: Huanjiang County, Mulun National Reserve, Hongdong, under evergreen broad-leaved forests and semi-evergreen broad-leaved forests on limestone hills, accidental, 108°18'E, 24°43'N, 308–512 m a.s.l., 26 April 2009 *Yi-Gang Wei 124* (holotype IBK, isotypes IBK! PE!).

ETYMOLOGY: The specific epithet is derived from the distinct longitudinal ribs on the two larger bracts of male capitulum.

Perennial herb. Stems ca. 28 cm high, 2 mm diam. near base, slightly zigzag-curved near top, hispidulous, hairs simple or only short 1-branched on lower part, 0.45–0.50 mm long. Leaves alternate, ca. 9, nanophylls absent; leaves with short petiole, coriaceous or thin chartaceous, obliquely elliptic or obliquely oblong, 3.6–10 × 2.2–4.5 cm, apex acuminate, rarely acute, base asymmetrical, on narrow side cuneate, on broad side auriculate, margin slightly dentate from base, adaxial surface sparsely strigose, 0.15–0.25 mm long, abaxial surface pubescent, cystoliths thicker along nerves, bacilliform, 0.1–0.25(–0.3) mm long, trinerved at base, lateral nerves 3 on narrow side, 4 on broad side; lamina flat on both surfaces; petiole 1–5 mm long, stipules membranaceous, lanceolate or ovate, 8–12 × 3 mm, glabrous or sparsely pubescent, white, with one green nerve. Male capitulum solitary, axillary, ca. 5 mm wide; peduncle sturdy, 3.5–4.5 mm long, ca. 1 mm wide, densely hispidulous, 0.10–0.22 mm long, receptacle rectangle or oblong, ca. 3 × 1 mm; bracts 6, outside sparsely hispidulous, outer ones 2, larger, oblate-ovate, 2.5 × 5 mm, outside with 5 longitudinal ribs, each ribbed extending apically as a corniculate protuberance, inner ones 4, smaller, oblate-obovate, ca. 2 × 3 mm, outer below top with corniculate protuberance; bracteoles dense, 10–18 or more, 2.5–4.0 × 1.0–1.5 mm, membranaceous, translucent, oblanceolate or obovate, pubescent, some larger with few cystoliths. Staminate flower in bud with short pedicel, nearly globose, ca. 0.6 mm wide, 1.5–1.8 mm long, apex corniculate, with 3 corniculate protuberance, pubescent, 0.05–0.08 mm long. Female inflorescences and achenes not seen.

**HABITAT AND PHENOLOGY.** *Elatostema robustipes* grows in shady, damp places in evergreen broad-leaved forests and semi-evergreen broad-leaved forests of limestone hills. It was observed to flower in April. At present, it is known only from one location in the Mulun National Reserve.

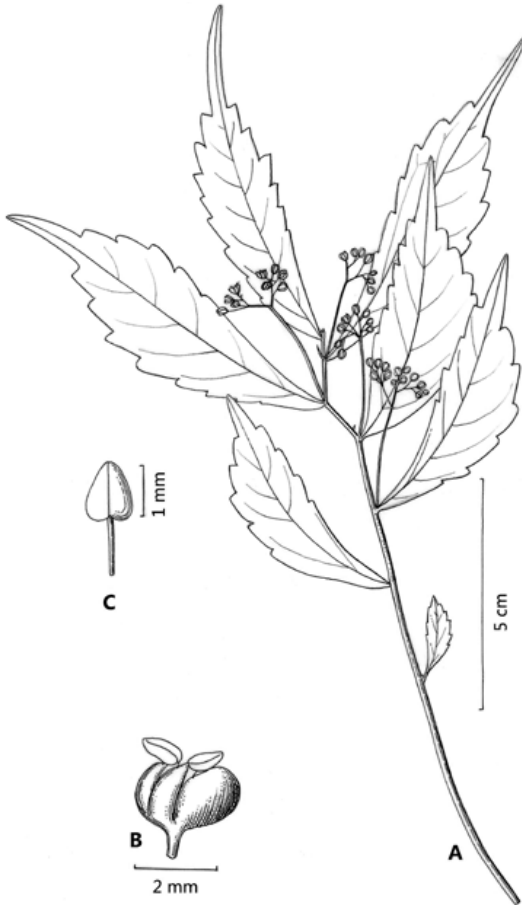
*Elatostema robustipes* is similar to *E. balansae* but differs by the following features: the broad side of leaf base being auriculate (vs. broadly cuneate or rounded); the abaxial side of the two outside bracts of the male receptacle having five longitudinal ribs, the protuberant top



**Fig. 1.** *Elatostema robustipes* (A–C from the holotype, D from an isotype in PE; drawn by Ying-Bao Sun). — A: Apical part of flowering stem. — B: Staminate capitulum. — C: Inner staminate bract. — D: Three staminate bracteoles and staminate flower bud.

of each rib forming a corniculate protuberance (vs. three inconspicuous longitudinal ribs, only the protruded top of the central rib forming a corniculate protuberance); the bracteoles being oblanceolate or obovate (vs. linear). Morphological characteristics and differences between the two species are summarized in Table 1.

Several species have been described in *Elatostema* and *Pellionia* based on specimens with only male or female inflorescences, such as *Pellionia donglanensis* and *P. longzhouensis* (only female), *Elatostema conduplicatum* and *E. albovillosum* (only male), *E. cultratum*, *E. funingense*, *E. actinotrichum*, *E. nanchuanense* var. *nigribacteolatum* and *E. nanchuanense* var. *brachyceras* (only female) (Wang 2010). Because specimens with single-sex inflorescences are frequently collected, the other sex might be rare or unknown. For instance, of the widespread *E. cyrtandrifolium* thousands of specimens with female inflorescences have been collected but only very few specimens with male inflores-



**Fig. 2.** *Pellionia tenuicuspis* from the holotype, drawn by Ying-Bao Sun). — **A:** Branch with flowering staminate inflorescences. — **B:** Staminate flower. — **C:** Stamen, illustrating filament and anther locules.

cences. Nevertheless, the different species can be distinguished by their other characters and by their single-sex organs. Based on 24 specimens of *E. robustipes* observed in different seasons in the course of three years, and further specimens collected from the same locality, we can confirm the single sex of the population, which indicates that they are dioecious.

***Pellionia tenuicuspis* W.T. Wang, Y.G. Wei & F. Wen, sp. nova (Fig. 2)**

TYPE: China. Guangdong Province: Ruyuan County, Luoyang Town, Tianjingshan Mount, in the limestone canyon, grows on the bottom of cliffs, 408 m a.s.l., 24°37'29"N, 113°3'45"E, 8 March 2010 Y.G. Wei & Fang Wen 1019 (holotype IBK). — PARATYPES: China. Guangdong Province, Ruyuan County, Luoyang Town, Tianjingshan Mount, on the moist limestone rock face, alt. 410 m. 24°37'30"N, 113°3'47"E, 10 March 2011 Y.G. Wei & Fang Wen 1103 (IBK).

ETYMOLOGY: The specific epithet, *tenuicuspis*, is derived from the slenderly caudate to acuminate, to caudate-cuspidate apex of leaf lamina.

Perennial herb, black when dry. Stems 15–17.5 cm, ca. 2 cm wide at base, glabrous, unbranched, bearing 4–6 alternate procumbent leaves. Leaves sessile or subsessile, 1.8–7.8 × 0.5–2 cm; base obliquely cuneate; margin toothed with obtuse teeth; obliquely narrowly obovate or narrowly elliptic, often oblique at leaf base, glabrous, subchartaceous; cystoliths inconspicuous, sparse, bacilliform or punctiform, 0.05–0.1(–0.2) mm; base obliquely cuneate; margin obtuse dentate; apex cuspidate or cau-

**Table 1.** Morphological comparison of *Elatostema robustipes* and *E. balansae*.

| Characters         | <i>E. robustipes</i>   | <i>E. balansae</i>   |
|--------------------|--|--|
| Leaf shape         | major basal side auriculate; margin finely dentate from the base, apex acuminate, rarely acute | major basal side broadly cuneate or rounded; margin dentate, apex cuspidate or acuminate |
| size               | 3.6–10 × 2.2–4.5 cm  | 6–17 × 3–6 cm  |
| texture            | adaxial surface sparsely strigose, abaxial surface pubescent                                   | adaxial surface sparsely strigillose, abaxial surface sparsely puberulent or glabrous    |
| cystoliths         | thicker along nerves   | dense and conspicuous  |
| Male inflorescence |  |  |
| peduncle           | 3.5–4.5 mm long  | 1.0–2.0 mm long  |
| bracteoles         | oblanceolate or obovate  | linear   |

**Table 2.** Morphological comparison between *Pellionia tenuicuspis* and *P. incisoserrata*.

| Characters     | <i>P. tenuicuspis</i>  | <i>P. incisoserrata</i>                                  |
|----------------|--|--|
| Petiole        | subsessile or sessile  | 2–4 mm long  |
| Leaf           |  |  |
| shape          | obliquely lanceolate-obovate or obliquely lanceolate-elliptic      | obliquely elliptic                                       |
| size           | 1.8–7.8 × 0.5–2 cm   | 4–10 × 1.6–3.2 cm  |
| apex           | cuspidate or caudate-cuspidate                                     | acuminate  |
| lateral nerves | ca. 3–6 on the narrow side and ca. 5–7 on the broad side           | 6–10 pairs of nerves                                     |
| Staminate      |  |  |
| Cymes peduncle | glabrous   | pubescent  |
| Flower tepals  | broadly ovate or ovate, glabrous, lacking a horn-like protuberance | elliptic; pubescent; with a short horn-like protuberance |
| Staminode      | absent   | present  |

date-cuspidate, with linear or narrowly linear cusp, 1.35–2.35 cm long, 0.32–0.47 cm wide at base, rarely acuminate; penninerved, lateral nerves ca. 3–6 on narrow side of lamina, ca. 5–7 on broad side of lamina, raised on abaxial surface; adaxial surface flat; stipule subulate, 0.1–0.2 × 0.01–0.02 cm wide. Staminate inflorescence axillary, solitary, rarely two per axil, 5–10-flowered; peduncle long, glabrous, 0.4–2.4 cm, 0.05–0.10 cm wide at midpoint; bract 1, narrowly linear or subulate, 0.08–0.1 × 0.015–0.02 cm; pedicel 0.12–0.24 cm long, 0.015–0.035 cm wide. Staminate flowers glabrous; tepals 5, unequal, broadly ovate or ovate, ca. 0.18 × 0.07–0.14 cm, basally connate, apex obtuse, subapical appendage corniculate; stamens 5, filaments ca. 0.11 cm, unequal; anthers broadly triangular, pistillate inflorescences and flowers unseen.

**ECOLOGY AND PHENOLOGY.** *Pellionia tenuicuspis* grows in the shade at the bottom of limestone cliffs and under evergreen broad-leaf forest in Ruyuan County, Guangdong. It flowers in March. At present, this species is known only from one locality in the Tianjingshan Mount Park.

*Pellionia tenuicuspis* most closely resembles *P. incisoserrata*, but there are several differences (Table 2).

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