

***ELATOSTEMA BIOPPOSITUM* (URTICACEAE), A NEW SPECIES
FROM GUANGXI, CHINA**

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Abstract

A new species of *Elatostema* J. R. Forst. & G. Forst. (Urticaceae), *E. bioppositum* L. D. Duan & Y. Lin, is described and illustrated from Guangxi, China. This species was found growing in evergreen broad-leaved forests in limestone hills at altitudes of 410-550 m. The new species is related to *E. oppositum* Q. Lin & Y. M. Shui, but differs from the latter by stipule linear, lanceolate-linear or lanceolate, 12-25 mm long, 2.0-4.5 mm wide; leaf blade green after drying; male inflorescence 15-30 mm in diameter and peduncle 2-3 mm long; and female inflorescence 7-15 mm in diameter.

Introduction

The genus *Elatostema* J. R. Forster & G. Forster, as one of the largest genera in the family Urticaceae, consists of c. 500 species and is distributed in tropical and subtropical regions of Africa, Asia and Oceania. Southern and south-western China is one centre of distribution for *Elatostema* and about 240 species of *Elatostema* have been recorded from China (Wu *et al.*, 2012).

After a series of taxonomic studies on *Elatostema* have been published (Duan and Lin, 2003, 2007, 2010; Duan *et al.*, 2006a, 2006b, 2011; Lin and Duan, 2002a, 2002b, 2003, 2008), we have examined some specimens of *Elatostema* from China and its adjacent area, and carried out field studies in China (Guangdong, Guangxi, Guizhou, Hubei, Hunan, Sichuan, Yunnan) and Vietnam. During an expedition in Longzhou County, southwest Guangxi Zhuangzu Zizhiqu, southwest China from April to June 2011, and July 2012, a previously unknown species was collected in evergreen broad-leaved forests in limestone hills at altitudes of 410-550 m, latitude 22° 39' N, longitude 106° 49' E. After critical examination of the specimens and carefully consulting relevant literatures (Wang, 1995; Lin and Duan, 2002a,b, 2003, 2008; Duan and Lin, 2003, 2007, 2010; Lin *et al.*, 2003; Duan *et al.*, 2006a,b; Bi *et al.*, 2001; Wu *et al.*, 2012; Wei *et al.*, 2013), they been identified as a new species, *Elatostema bioppositum* sp. nov. The new species is described and illustrated here.

***Elatostema bioppositum* L. D. Duan & Y. Lin, sp. nov.**

(Figs 1-3).

Diagnosis: *Elatostema bioppositum* is morphologically similar to *E. oppositum* Q. Lin & Y. M. Shui, but differs in stipule, leaf blade colour after drying, male receptacle size and peduncle length, and female inflorescence size as summarized in Table 1.

Type: China. Guangxi Zhuangzu Zizhiqu: Longzhou County, Jinlong town, 410-550 m, 1 April 2011, ♂, *L. D. Duan 5241* (*Holotype*: PE; *Isotypes*: HUFV (Herbarium, Hunan Food and Drug Vocational College, Hunan, China), HUSY (Herbarium, Shaoyang University, Hunan, China), K, MO, P, PE); the same locality, 3 April 2011, ♂, *L.D. Duan* (*Paratypes*: HUSY, PE), 5212 (*Paratypes*: HUSY, PE); the same locality, 25 May 2011, ♀, *L.D. Duan 5253* (*Paratypes*: HUSY, PE), 5254 (*Paratypes*: HUSY, PE); the same locality, 3 June 2011, ♀, *L.D. Duan 5256*

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(*Paratypes*: HUSY, PE), 5258 (*Paratypes*: HUSY, PE); the same locality, 4 June 2011, ♀, L.D. Duan 5260 (*Paratypes*: HUSY, PE), 5262 (*Paratypes*: HUSY, PE); the same locality, 26 July 2012, ♀, L.D. Duan & Y. Lin 25 (*Paratypes*: BM, HUFD, HUSY, L, PE), 26 (*Paratypes*: HUFD, HUSY, PE).

Vernacular name: Shuangduisheng louticao.

Perennial herbs, tufted, tap-rooted, dioecious, 40-80 cm tall, glabrous. Stems fleshy, erect or ascending, simple, 0.3-2.0 cm in diameter, longitudinally striate and brown furfuraceous. Leaves alternate; nanophyll absent; stipules 2, herbaceous, linear, lanceolate-linear or lanceolate, 12-25 mm long, 2.0-4.5 mm wide, with cystoliths linear, 0.2-0.5 mm long, deciduous; petiole 2-10 mm

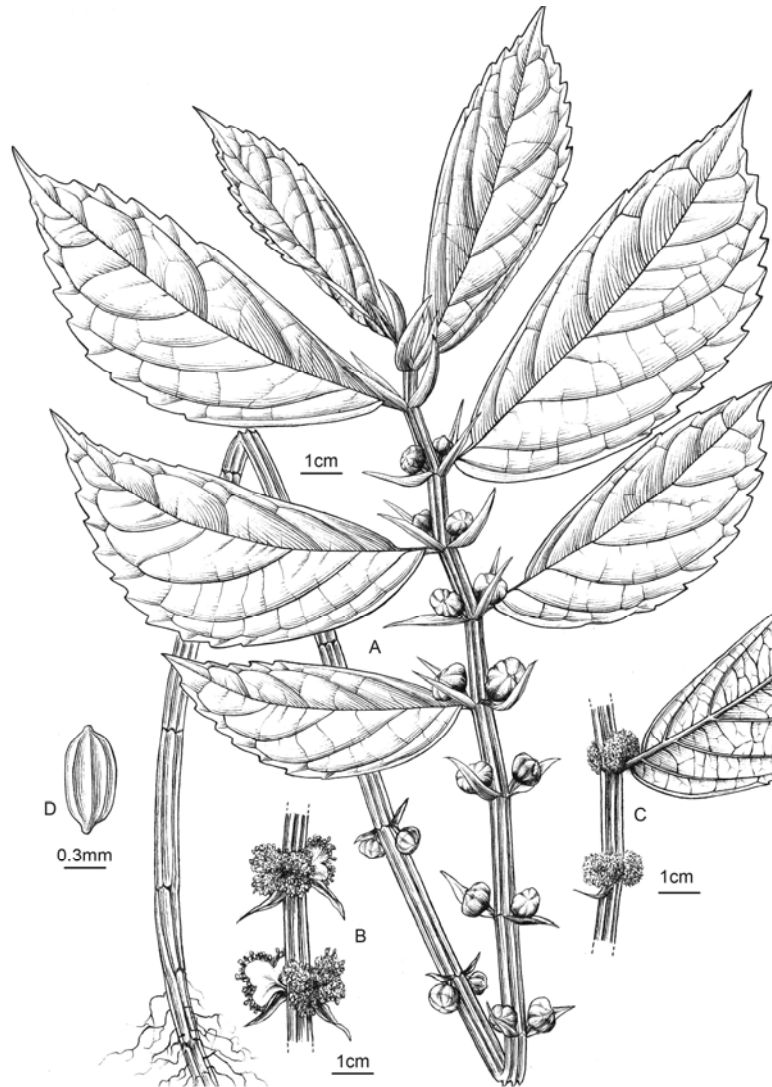


Fig. 1. *Elatostema bioppositum* L. D. Duan & Yun Lin, **sp. nov.** (L. D. Duan 5212, PE). (A) male habit, (B) portion of male flowering stem (L. D. Duan 5241, PE), (C) portion of fruiting stem (L. D. Duan 5253, PE), (D) achene (L. D. Duan 5253, PE).

long; leaf blade obliquely oblong, (35-) 70-195 mm long, (11-) 30-115 mm wide, glabrous, fleshy, or chartaceous and green after drying, venation pinnate, major basal lateral (secondary) veins absent, with cystoliths conspicuous, linear, 0.2-0.6 mm long, dense, random on both surfaces; base with broader half rounded or auriculate, narrower half cuneate; margin dentate or crenate, lower broader-half basal $\leq 1/3$ entire and narrower-half basal $\leq 2/3$ entire; apex acute or acuminate, acumen entire. Male inflorescence or female inflorescence opposite each other at the same stem



Figs 2-3. 2. *Elatostema bioppositum* sp. nov. Habitat of male plant (L. D. Duan 5241). (A) male branches, (B) male inflorescences when young, (C) vegetative branches. 3. *Elatostema bioppositum* sp. nov. Habitat of female plant (L. D. Duan 5262). (A) female branches, (B) female inflorescences.

node with the node either bearing a leaf or a bract and without a leaf, one male inflorescence or one female inflorescence opposes at the leaf base, with the second one at the bract base, or both found at bract bases when the stem node leafless; bracts on the node herbaceous, glabrous,

lanceolate to narrowly ovate, 6-20 mm long, 3-6 mm wide, deciduous. Male inflorescence solitary, simple, 15-30 mm in diameter; peduncle glabrous, 2-3 mm long; receptacle pyriform when young, dehiscent, nearly butterfly-like when mature, 15-30 mm in diameter, with cystoliths; involucre bracts obscure; bracteoles numerous, equal, dense, linear, 1.5-2.0 mm long. Male flowers 4-merous; perianth lobes yellowish or white, ovate-elliptic, 2.2-2.5 mm long; stamens 4; pistil rudimentary, very small. Female inflorescence solitary, nearly orbicular, mostly 7-15 mm in diameter, receptacle nearly orbicular, 5-10 mm in diameter, with cystoliths; involucre bracts obscure; bracteoles numerous, very small, subulate, c. 1 mm long. Achenes ellipsoidal, 0.7-0.8 mm long, c. 4-ribbed.

Phenology: Flowering from April to May and fruiting from June to July.

Etymology: The epithet 'bioppositum' refers to male inflorescence or female inflorescence opposite to each other at the same stem node with the node either bearing a leaf or without a leaf, one male inflorescence or one female inflorescence opposes at the leaf base, with the second one at bract base, or both found at bract bases when the stem node is leafless.

Habitat: It grows only in evergreen broad-leaved forests in limestone hills at altitudes of 410-550 m, comprising c. 900 individuals growing in more than ten populations within a nature reserve.

Distribution: *Elatostema bioppositum* is only known from its type locality, Gaoshan village, Jinlong town, Longzhou County, southwest Guangxi Zhuangzu Zizhiqu, South-west China

Table 1. Comparison of morphological characteristics of *Elatostema bioppositum* and *E. oppositum*.

Characters	<i>E. bioppositum</i> sp nov.	<i>E. oppositum</i>
Stem	Simple, with brown furfuraceous	Simple or branched, without furfuraceous
Stipule	Linear, lanceolate-linear or lanceolate, 12-25 mm long, 2.0-4.5 mm wide	Subulate, 5-7 mm long, 1.0-1.5 mm wide
Leaf blade	Green after drying, major basal lateral veins absent and venation pinnate	Brown-black after drying, the 2 major basal lateral veins asymmetric, one arising above the other basal vein
Male inflorescence	Opposite; 15-30 mm in diameter; peduncle 2-3 mm long	Opposite; 6-16 mm in diameter; peduncle 5-35 mm long
Female inflorescence	Opposite; 7-15 mm in diameter	Opposite or in pairs; 4-5 mm in diameter
Achene	c. 4-ribbed	c. 10-ribbed

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References

- Bi, H.Y., Yang, Z.R. and Lin, Q. 2001. New taxa of *Elatostema* (Urticaceae) from Thailand and India. Bangladesh J. Plant. Taxon. **18**(2): 149-152.
- Duan, L.D. and Lin, Q. 2003. Taxonomic notes on *Elatostema xinningense* W. T. Wang. Acta Phytotax. Sin. **41**: 495-496.
- Duan, L.D. and Lin, Q. 2007. New records of Urticaceae from some provinces in China. Bull. Bot. Res., Harbin **27**: 527-528.
- Duan, L.D. and Lin, Q. 2010. *Elatostema cataractum* (Urticaceae), a new species from Guizhou Province, China. Ann. Bot. Fenn. **47**: 229-232.

- Duan, L.D., Lin, Q. and Shao, Q. 2006a. Two new synonyms of *Elatostema* (Urticaceae). *Acta Phytotax. Sin.* **44**: 474-476.
- Duan, L.D., Lin, Q. and Shao, Q. 2006b. The classification and distribution of *Elatostema* (Urticaceae) in Hunan, China. *Life Sci. Res.* **10**: 144-150.
- Duan, L.D., Lin, Q., Yang, Z.R. and Shao, Q. 2011. New records of Urticaceae from twelve provinces in China. *Acta Bot. Boreali-Occident. Sin.* **31**(5): 1050-1052.
- Lin, Q. and Duan, L.D. 2002a. Taxonomic notes on some species of *Elatostema* (Urticaceae) from China. *Acta Phytotax. Sin.* **40**: 444-448.
- Lin, Q. and Duan, L.D. 2002b. New records for *Elatostema* and *Pellionia* (Urticaceae) in some provinces of China. *J. Trop. Subtrop. Bot.* **10**: 356-360.
- Lin, Q. and Duan, L.D. 2003. Taxonomic notes on five species of *Elatostema* (Urticaceae) from China. *Acta Bot. Yunnan.* **25**: 633-638.
- Lin, Q. and Duan, L.D. 2008. Two new species and a new series of *Elatostema* (Urticaceae) from China. *Bot. J. Linn. Soc.* **158**: 674-680.
- Lin, Q., Friis, I. and Wilmot-Dear, C.M. 2003. *Elatostema* (Urticaceae). *In*: Wu, Z.Y. and Raven, P.H. (Eds), *Flora of China*, Vol. **5**. Science Press, Beijing and Missouri Botanical Garden Press, St. Louis, USA. pp. 127-163.
- Lin, Q., Shui, Y.M. and Duan, L.D. 2011. *Elatostema oppositum* (Urticaceae), a new species from Yunnan, China. *Novon* **21**: 212-215.
- Wang, W.T. 1995. *Elatostema* J.R. et G. Forst. *In*: Wang, W.T. and Chen, C.J. (Eds), *Flora Reipublicae Popularis Sinicae*, Vol. **23**, No. 2. Science Press, Beijing, pp. 187-317.
- Wei, Y.G., Wen, F., Fu, L.F. and Wang, W.T. 2013. Three new species of *Elatostoma* J.R. Forst. & G. Forst. (Urticaceae) in limestone caves from Guangxi and Guixhou, China. *Bangladesh J. Plant Taxon.* **20**(1): 1-8.
- Wu Z.Y., Li, D.Z., Wang, H. and Wang, W.T. 2012. One new series with its only new species of *Elatostema* (Urticaceae) from southeast Yunnan, China. *Plant Divers. Resour.* **24**(2): 151-154.

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