



## A new genus of the tribe Meconematini (Orthoptera: Tettigoniidae: Meconematinae)

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### Abstract

In this paper, one new genus, three new species are described: *Alloxiphidiopsis* gen. n., *Alloxiphidiopsis cyclolamina* sp. n., *Alloxiphidiopsis longicauda* sp. n. and *Alloxiphidiopsis ovalis* sp. n. (Meconematini). Two new combinations are proposed: *Alloxiphidiopsis emarginata* (Tinkham, 1944) comb. n. and *Alloxiphidiopsis irregularis* (Bey-Bienko, 1962) comb. n. from *Xiphidiopsis*. A key to the species is given.

**Key words:** Taxonomy, Meconematini, *Alloxiphidiopsis*, new species

### Introduction

Meconematini is the largest tribe in Meconematinae, which was proposed by Burmeister (1838). 31 genera are presently recognised in this tribe, most of which are distributed in Asia. During the course of a revision of Chinese Meconematini, we discovered that the males of *Xiphidiopsis emarginata* Tinkham, *Xiphidiopsis irregularis* Bey-Bienko and three new species have highly modified 9<sup>th</sup> abdominal tergites, and the females of two species (the others are unknown) have denticulated ovipositors. These characters differ clearly from the other genera of Meconematini. Thus we think it is wiser to treat them as a single genus for the time being. The type specimens are deposited respectively in Shanghai Entomological Museum, Chinese Academy of Sciences (SEM); Institute of Zoology, Chinese Academy of Sciences (IZCAS); Nankai University, Tianjing (NUT) and Bishop Museum, Hawaii (BMH).

### *Alloxiphidiopsis* gen. n.

Type species: *Xiphidiopsis emarginata* Tinkham, 1944

Size small. Long-winged species. Head with bluntly conical fastigium of vertex, and with a longitudinal groove at middle of dorsal surface. Last segment of maxillary palpi about equal to the preceding one. Pronotum not very long, humeral sinus hardly indicated. Tegmina and hind wings considerably surpassing apices of caudal femora. Male stridulatory apparatus developed. Fore coxae with a spine. All femora unarmed. Lower lobes of hind knee bluntly rounded. Fore tibiae with open tympanum on each side. Hind tibiae with three pairs of apical spurs. 9<sup>th</sup> abdominal tergite of male with a median process. Cerci of male symmetrical or asymmetrical. Subgenital plate of male with paired styles. Ovipositor as in *Teratura* (*Megaconema*) Gorochov (2005), with ventral margin denticulated.

**Discussion.** The new genus differs from the other genera of Meconematini by the highly modified 9<sup>th</sup> abdominal tergite of male and denticulated ventral margin of ovipositor.

**Distribution.** China, Laos.

**Key to the species of *Alloxiphidiopsis***

- 1 Tegmina with blackish brown spots; cerci of male symmetrical..... 2
- Tegmina without blackish brown spots; cerci of male asymmetrical ..... 3
- 2 Median process of male 9<sup>th</sup> abdominal tergite hardly reaching hind margin of last abdominal tergite, its apex rounded. Subgenital plate of female weakly emarginated ..... *A. emarginata* (Tinkham, 1944)
- Median process of male 9<sup>th</sup> abdominal tergite extending beyond last abdominal tergite, its apex lobed; subgenital plate of female deeply forked, with compressed lateral lobes..... *A. cyclolamina* sp. n.
- 3 9<sup>th</sup> abdominal tergite of male with asymmetrical median process ..... *A. irregularis* (Bey-Bienko, 1962)
- 9<sup>th</sup> abdominal tergite of male with symmetrical median process..... 4
- 4 9<sup>th</sup> abdominal tergite of male with very long median process, shaped as in Fig. 11; male left cercus distinctly longer than right one..... *A. longicauda* sp. n.
- 9<sup>th</sup> abdominal tergite of male with shorter median process, shaped as Fig. 14; male left cercus as long as right one..... *A. lovalis* sp. n.

***Alloxiphidiopsis emarginata* (Tinkham, 1944) comb. n.**

(Figs. 1–3)

*Xiphidiopsis emarginata* Tinkham, 1944. Proc. U.S. Nation. Mus., 94: 526.

*Xiphidiopsis emarginata* Tinkham, 1956. Trans. Amer. Ent. Soc., 82: 5.

*Xiphidiopsis emarginata* Tinkham: Xia et Liu, 1993. In Huang: Insect of Wuling Mountains Area, Southwestern China, Science Publishing House, Beijing. p. 99.

*Xiphidiopsis emarginata* Tinkham: Jin et Xia, 1994. J. Orth. Res., 3: 27.

*Xiphidiopsis emarginata* Tinkham: Liu et Jin, 1994. Contr. Shanghai Inst. Ent., 11: 110.

*Xiphidiopsis emarginata* Tinkham: Liu et Jin, 1997. In Yang Xingke: Insect of the Tree Gorge Reservoir area of Yangtze River, Chongqing Publishing House, Chongqing. p. 160.

*Xiphidiopsis? emarginata?* Tinkham: Gorochov, Liu et Kang, 2005. Oriental Insects, 39: 81–82.

**Diagnosis.** ♂. Size small. Fore tibiae with ventral spines arranged in type 4, 5 (1, 1). Median process of 9<sup>th</sup> abdominal tergite not or scarcely reaching hind margin of last abdominal tergite, with rounded apex (Fig.1). Hind margin of last abdominal tergite with two short lobes. Cerci symmetrical, with finger-like dorsal lobe and rounded ventral lobe.

♀. Subgenital plate weakly emarginated (Fig.2). Ovipositor straightly extending beyond the tips of the hind femora, ventral margin with 3–5 distinct teeth near extreme apex (Fig.3).

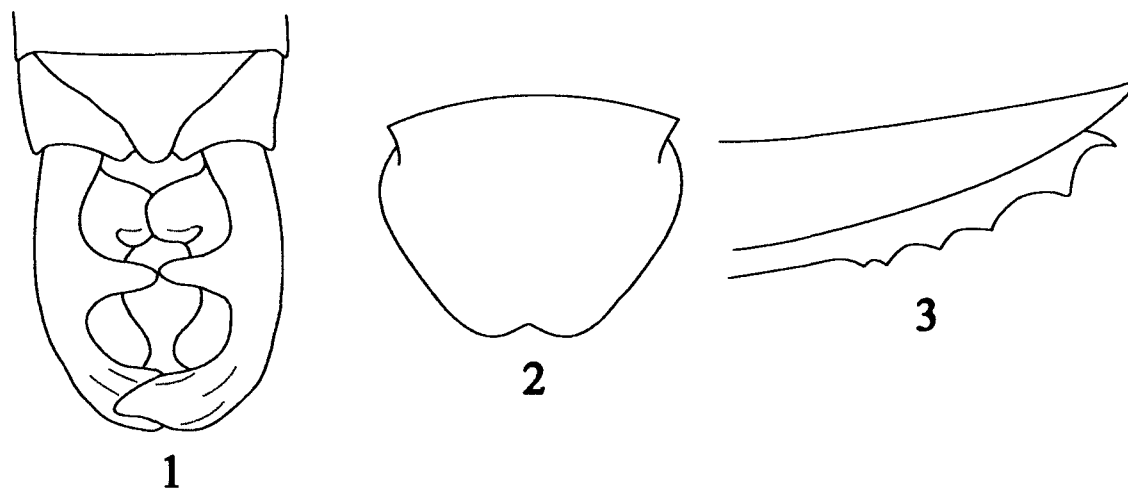
**Coloration.** Yellowish green. Tegmina with blackish brown spots. Hind tibial spines darkened.

**Measurements ( length in mm).**

	body	pronotum	tegmina	hind femora	ovipositor
♂	8.0–12.5	3.0–4.0	13.8–18.5	9.0–11.0	
♀	9.0–12.5	3.5–4.0	15.0–18.5	10.0–11.0	9.0–10.5

**Additional material.** 1♂, 6♀♀, Hunan (Cili Suoxiyu), 1–4.IX.1988 (LIU Xian-Wei) (SEM); 1♂, Guangxi (Longan Longhushan), 29.VIII–1.IX.1995 (LIU Xian-Wei, JIN Xin-bao & ZHANG Wei-Nian) (SEM); 2♀♀, Guangxi (Xingan Maoershan), 24.VIII.1992 (LIU Xian-Wei & YIN Hai-Sheng) (SEM); 1♂1♀, Guangxi (Yangshuo), 150m, 18.VII.1963 (WANG Shu-Yong) (IZCAS).

**Distribution.** China (Hunan, Sichuan, Guangxi).



**FIGURES 1–3.** *Alloxiphidiopsis emarginata* (Tinkham, 1944) **comb. n.** 1, male abdominal end, dorsal view; 2, female subgenital plate, ventral view; 3, female end of ovipositor, lateral view.

***Alloxiphidiopsis cyclolamina* sp. n.**

(Figs. 4–7)

**Diagnosis.** ♂. Size small. Fore tibiae with ventral spines arranged in type 4, 5 (1, 1). Median process of male 9<sup>th</sup> abdominal tergite extending beyond last abdominal tergite, with apex bilobed (Fig.4). Hind margin of last abdominal tergite weak concave. Cerci symmetrical, shaped as in Fig. 5. Subgenital plate shaped as in Fig.6.

♀. Subgenital plate deeply forked, nearly to its base, with compressed lateral lobes (Fig.7). Ovipositor straight extending beyond the tips of the hind femora. Ventral margin with 5–6 distinct teeth near the extreme apex.

**Coloration:** Yellowish green. Tegmina with blackish brown spots. Hind tibial spines darkened.

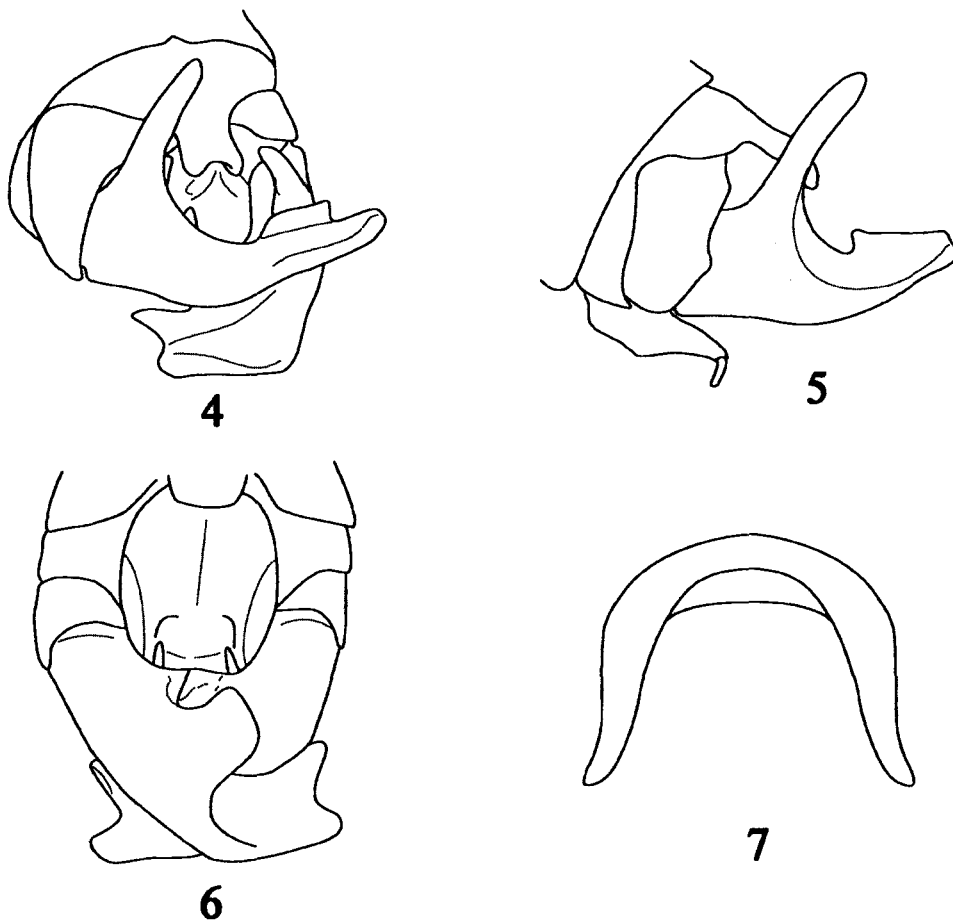
**Measurements ( length in mm)**

	body	pronotum	tegmina	hind femora	ovipositor
♂	11.0–12.5	4.5	18.5–19.5	11.0–12.5	
♀	10.3	4.5	21.5	12.1	12.0

Holotype ♂, Yunnan (Jinghong Menglun), 4.IX.1991 (*Liu Zu-Yao, Wang Tian-Qi & Yin Hai-Sheng*); Paratype 1♀, Yunnan (Jinghong Menglun), 4.IX.1991 (*Liu Zu-Yao, Wang Tian-Qi & Yin Hai-Sheng*); 1♂, Yunnan (Jinuo), 5–9.VIII.1995 (*Liu Xian-Wei, Zhang Wei-Nian & Jin Xin-Bao*). (SEM).

**Discussion.** This species is very similar to *A. emarginata* (Tinkham, 1944), but may be easily recognized by the shape of the male 9<sup>th</sup> abdominal tergite and female subgenital plate.

**Etymology:** Name “*cyclo-lamina*” refers to character of female subgenital plate.



**FIGURES 4–7.** *Alloxiphidiopsis cyclolamina* sp. n. 4, male abdominal end, postero-lateral view; 5, male abdominal end, lateral view; 6, male abdominal end, ventral view; 7, female subgenital plate, ventral view.

***Alloxiphidiopsis irregularis* (Bey-Bienko, 1962) comb. n.**  
(Figs. 8–10)

*Xiphidiopsis irregularis* Bey-Bienko, 1962. Proc. Zool. Inst., USSR Acad. Sci., Leningrad, 30: 126–127.

*Xiphidiopsis irregularis* Bey-Bienko: Liu et Jin, 1994. Contr. Shanghai Inst. Entomol., 11: 110.

*Xiphidiopsis irregularis* Bey-Bienko: Jin et Xia, 1994. J. Orth. Res., 3: 27.

*Xiphidiopsis irregularis* Bey-Bienko: Gorochov, 1998. Zoosystematica Rossica, 7(1): 101.

**Diagnosis.** ♂. Size small. Fore tibiae with ventral spines arranged in type 4, 5 (1, 1). Median process of 9<sup>th</sup> abdominal tergite long and asymmetrical (Fig. 8). Hind margin of last abdominal tergite with two short lobes. Cerci short and asymmetrical, left cercus longer than right one (Fig. 10). Subgenital plate quadrangle, with a pair of styles.

♀. unknown.

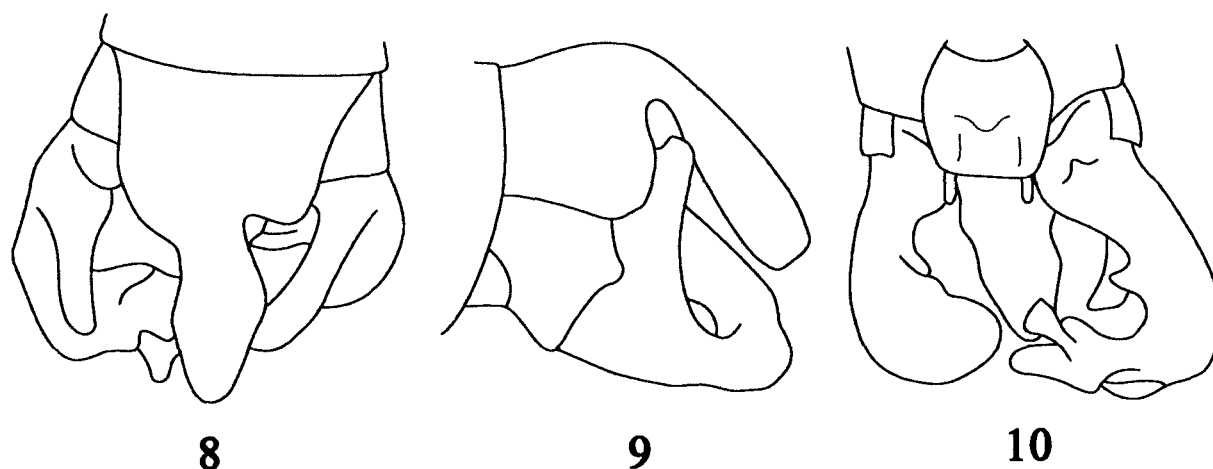
**Coloration:** Yellowish (living possibly greenish), unicolourous.

**Measurements (length in mm)**

	body	pronotum	tegmina	hind femora	ovipositor
♂	10.0	4.0	20.0	9.5	
♀	–	–	–	–	–

**Additional material.** 1♂, Yunnan (Xishuangbanna Menglong Mengsong), 1800m, 26.IV.1958 (*Cheng Han-Hua*) (NUT).

**Distribution.** China (Yunnan).



**FIGURES 8–10.** *Alloxiphidiopsis irregularis* (Bey-Bienko, 1962) **comb. n.** 8, male abdominal end, dorsal view; 9, male abdominal end, lateral view; 10, male abdominal end, ventral view.

***Alloxiphidiopsis longicauda* sp. n.**  
(Figs. 11–13)

**Diagnosis.** ♂. Size small. Fore tibiae with ventral spines arranged in type 4, 5 (1, 1). Median process of 9<sup>th</sup> abdominal tergite very long and symmetrical, with dilated apex into sharpened lateral angle (Fig.11). Hind margin of last abdominal tergite with two short lobes. Cerci long and asymmetrical, left cercus distinctly longer than right one (Fig.13).

♀. unknown.

**Coloration:** Yellowish (living possibly greenish), unicolourous.

**Measurements (length in mm)**

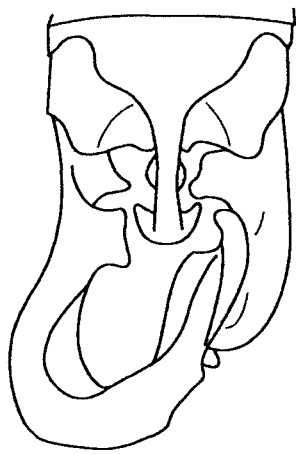
	body	pronotum	tegmina	hind femora	ovipositor
♂	9.5–11.5	3.5–3.8	15.0–18.0	8.5–9.0	
♀	–	–	–	–	–

Holotype ♂, Yunnan (Xishuangbanna Menglongmanbing), 650m, 16.IV.1958 (*Cheng Han-Hua*) (NUT); Paratype 1♂, Yunnan (Jinkang Taozizhai), 1100m, 22.IV.1980 (*Zhang Juan*) (IZCAS).

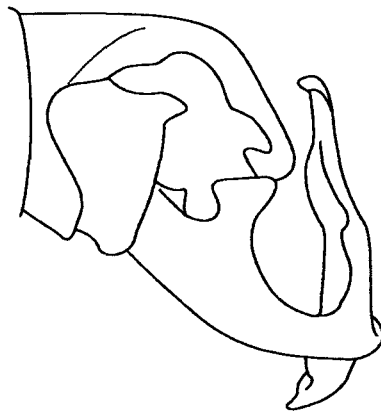
**Discussion.** The males of this new species is very similar to *A. irregularis* (Bey-Bienko, 1962), but differs in the shape of 9<sup>th</sup> abdominal tergite and left cercus distinctly longer than right one.

**Distribution.** China (Yunnan).

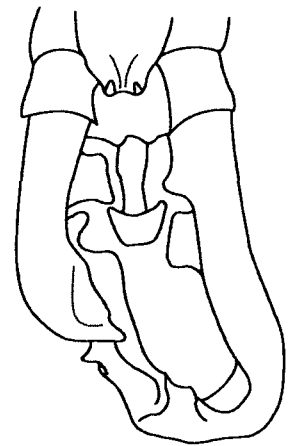
**Etymology:** Name “*long-cauda*” refers to very long median process of male 9<sup>th</sup> abdominal tergite.



11



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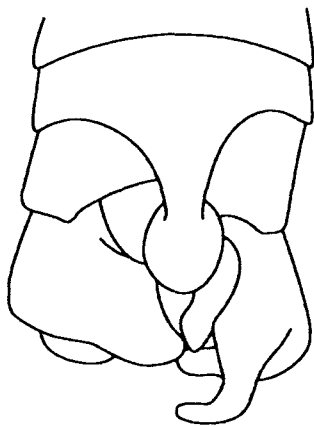
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**FIGURES 11–13.** *Alloxiphidiopsis longicauda* sp. n. 11, male abdominal end, dorsal view; 12, male abdominal end, lateral view; 13, male abdominal end, ventral view.

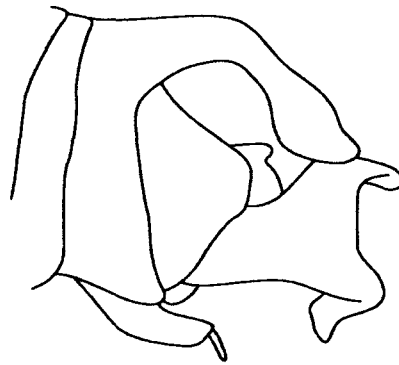
***Alloxiphidiopsis ovalis* sp. n.**

(Figs. 14–16)

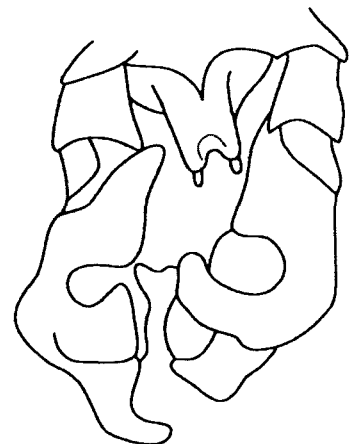
**Diagnosis.** ♂. Size small. Fore tibiae with ventral spines arranged in type 4, 5 (1, 1). Median process of 9<sup>th</sup> abdominal tergite rather short, with ovate apex (Fig. 14). Hind margin of last abdominal tergite with a pair of short lobes. Cerci shorter and asymmetrical (Fig. 16).



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**FIGURES 14–16.** *Alloxiphidiopsis ovalis* sp. n. 14, male abdominal end, dorsal view; 15, male abdominal end, lateral view; 16, male abdominal end, ventral view.

♀. unknown.

**Coloration:** Brownish yellow (living possibly greenish), unicolourous.

### Measurements (length in mm)

	body	pronotum	tegmina	hind femora	ovipositor
♂	10.0	3.5	17.0	10.0	
♀	—	—	—	—	—

Holotype ♂, Laos: Vientiane Prov. BanVan Eue, 15.XII.1966 (Native collector) (BMH).

**Discussion.** This new species is similar to *A. irregularis* (Bey-Bienko, 1962) and *A. longicauda* sp. n., however the shape of median process of 9<sup>th</sup> abdominal tergite and cerci may be easily distinguished.

**Distribution.** Laos.

**Etymology:** Name “*ovalis*” refers to median process of male 9<sup>th</sup> abdominal tergite with ovate apex.

### Acknowledgements

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