

A NEW SPECIES OF *AMPULICOMORPHA* (HYMENOPTERA: EMBOLEMIDAE) FROM CHINA

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ABSTRACT

Embolemidae (Hymenoptera: Chrysoidea) are parasitoids of Hemiptera Auchenorrhyncha. The genus *Ampulicomorpha* Ashmead, 1893, is present in all zoogeographical regions and 20 species have been described. *Ampulicomorpha sinensis* **sp. nov.** is described from the Nanling National Nature Reserve (Guangdong, China).

Key Words: Embolemidae, *Ampulicomorpha sinensis*, new species, Guangdong, China

RESUMEN

Los Embolemidae (Hymenoptera: Chrysoidea) son parasitoides de Hemiptera: Auchenorrhyncha. El género *Ampulicomorpha* Ashmead, 1893, está representado en todas las regiones zoogeográficas y contiene 20 especies descritas. Se describe por primera vez a *Ampulicomorpha sinensis* **sp. nov.**, colectado en la reserva nacional natural de Nanling (Guangdong, China).

Palabras Clave: *Ampulicomorpha sinensis*, nueva especie, Guangdong, China

Translation provided by the authors.

Embolemidae (Hymenoptera: Chrysoidea) are parasitoids of Hemiptera Auchenorrhyncha (Olmi 1996, 1999). *Ampulicomorpha* Ashmead, 1893, is found in all zoogeographical regions. Twenty species have been described (Olmi 1996, 1997, 1998, 1999, 2004a, 2004b, 2006, 2010; van Achterberg & van Kats 2000; Azevedo & Amarante 2005; Ortega-Blanco et al. 2011) and the genus was revised by Olmi (1996, 1997) and van Achterberg & van Kats (2000).

The species of *Ampulicomorpha* from China has been studied mainly by Xu et al. (2001). In 2012 the authors examined additional specimens of *Ampulicomorpha* from China, and have found one new species, which is described herein.

MATERIALS AND METHODS

The descriptions follow the terminology used by Olmi (1994, 1996, 1999) and Xu et al. (2012). The measurements reported are relative, except for the total length (head to abdominal tip, without the antennae). In the descriptions, POL is the distance between the inner edges of the 2 lateral ocelli; OL is the distance between the inner edges of a lateral ocellus and the median ocellus; OOL is the distance from the outer edge of a lateral ocellus to the compound eye; OPL is

the distance from the posterior edge of a lateral ocellus to the occipital carina; TL is the distance from the posterior edge of an eye to the occipital carina.

The types of all species of *Ampulicomorpha* have been examined.

The material studied in this paper is deposited in the following collections:

- AEIC American Entomological Institute, Gainesville, Florida, USA.
- AMNH American Museum of Natural History, New York, USA.
- CNC Canadian National Collection of Insects, Ottawa, Canada.
- RMNH Rijksmuseum van Natuurlijke Historie, Leiden, The Netherlands.
- SCAU Hymenopteran Collection of South China Agricultural University, Guangzhou, Guangdong, China.
- TARI Taiwan Agricultural Research Institute (TARI), Department of Applied Zoology, Wufeng, Taichung, Taiwan, China.
- ZJUC Department of Plant Protection, Zhejiang University, Hangzhou, Zhejiang, China.

SYSTEMATIC ACCOUNTS

Ampulicomorpha sinensis sp. nov. (Fig. 1B)

Material examined

HOLOTYPE: Male, CHINA, Guangdong, Nanling National Nature Reserve, 1-2.VII.2011, Zaifu Xu et al. leg. (SCAU). **Paratype:** same locality label as holotype, one female (SCAU).

Diagnosis

Male of *Ampulicomorpha* with 1SDC cell closed, completely enclosed by pigmented veins, with dorsal membranous process of paramere with some distal hairs and numerous scales, without papillae (Fig. 1B); female of *Ampulicomorpha* with 1SDC cell closed, completely enclosed by pigmented veins, with pronotum provided of complete median longitudinal furrow extended from anterior to posterior margin of pronotum, with palpal formula 6/3, with dorsal surface of propodeum provided of one rectangular basal area near anterior margin.

Description

HOLOTYPE male: Macropterous. Length 3.5 mm. Head brown, except part of ventral side brown-testaceous; antenna brown-testaceous; mesosoma brown, except prothorax testaceous;

metasoma brown; legs testaceous. Antenna filiform, not geniculated, not thickened distally; antenna articulated to prominent contiguous processes; antennal segments in following proportions: 13:3.5:21:19:18:17:16:15:14:16. Head glossy, slightly granulated, covered with short hairs, with dorsal side swollen; occipital carina complete; ocelli distinct; POL = 3; OL = 2.5; OOL = 9; OPL = 5.5; TL = 8; face with short median furrow near antennal toruli; eye small, approximately 0.5 as long as head (13:25); region of head from clypeus to antennal toruli with 2 longitudinal and median sutures very convergent. Palpal formula 6/3. Pronotum very short, shorter than scutum (8:21), with complete median longitudinal furrow. Scutum dull, granulated, covered with long hairs. Notauli incomplete, reaching approximately 0.15 length of scutum. Scutellum dull, granulated. Metanotum glossy, short, transverse, unsculptured. Propodeum dull, reticulate rugose; dorsal surface with 2 irregular median longitudinal keels from anterior margin to posterior surface, a basal median trapezoid area near anterior margin and 2 glossy, smooth unsculptured areas on sides. Mesopleuron and metapleuron glossy, smooth, punctate, unsculptured among punctures. Meso-metapleural suture distinct and complete. Forewing hyaline, completely slightly darkened; 1 SDC cell closed; marginal cell open; stigmal vein with distal part longer than proximal part (18:16). Hindwing hyaline, not darkened. Proximal membranous process of paramere with

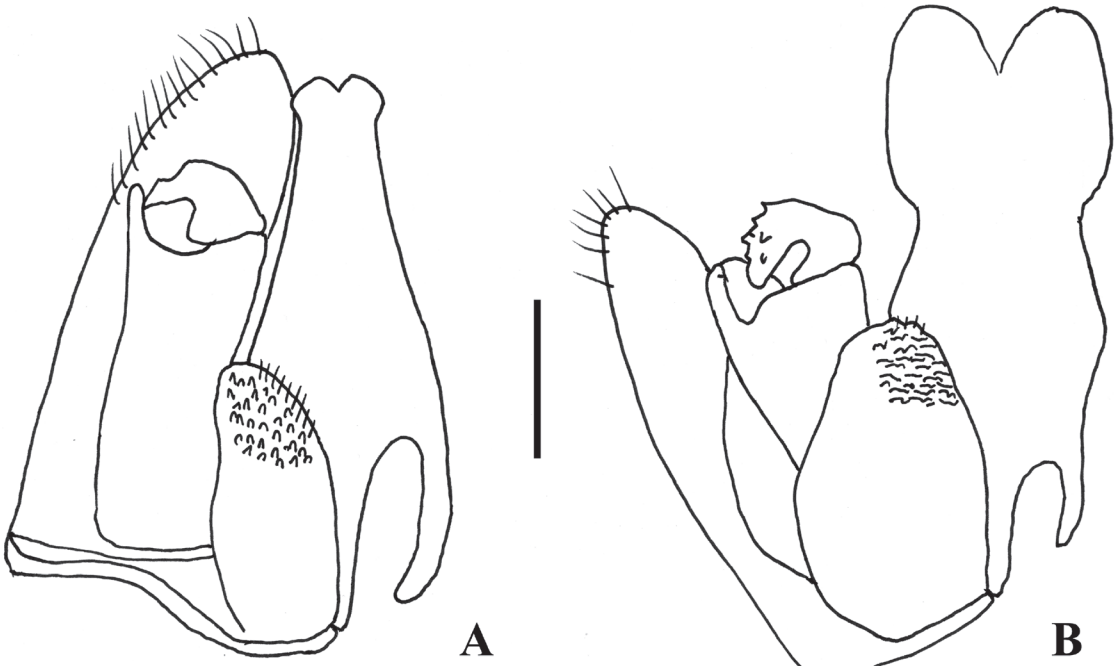


Fig. 1. Male genitalia of Oriental species of *Ampulicomorpha* (right half removed). A: *A. nepalensis*: paratype from Nepal, 20 Km N Trisuli; B: *A. sinensis*: holotype. Scale bar 0.08 mm.

some distal hairs and numerous scales, without papillae (Fig. 1B). Tibial spurs 1, 2, 2.

PARATYPE female: Macropterous. Length 4.0 mm. Head brown, except part of ventral side brown-testaceous; antenna brown-testaceous, except segments 1-2 testaceous; mesosoma brown, except propodeum brown-black; metasoma brown; legs testaceous. Antenna filiform, geniculated, not thickened distally; antenna articulated to prominent contiguous processes; antennal segments in following proportions: 38:7:20:19:18:17:15:14:14:16. Head glossy, slightly granulated, covered with short hairs, with dorsal side swollen; occipital carina complete; ocelli distinct; POL = 3; OL = 3; OOL = 9; OPL = 8; TL = 16; face with short median furrow near antennal toruli; eye small, approximately 0.3 as long as head (9:31); region of head from clypeus to antennal toruli with 2 longitudinal and median sutures very convergent. Palpal formula 6/3. Pronotum long, shorter than scutum (14:18), with complete median longitudinal furrow. Scutum dull, granulated, covered with long hairs. Notauli incomplete, reaching approximately 0.2 length of scutum. Scutellum dull, granulated. Metanotum glossy, short, transverse, unsculptured. Propodeum dull, reticulate rugose; dorsal surface with 2 irregular median longitudinal keels from anterior margin to posterior surface, a basal median square area near anterior margin and 2 glossy, smooth unsculptured areas on sides. Mesopleuron and metapleuron glossy, smooth, slightly granulated. Meso-metapleural suture distinct and complete. Forewing hyaline, completely slightly darkened; 1 SDC cell closed; marginal cell open; stigmal vein with distal part longer than proximal part (20:16). Hindwing hyaline, not darkened. Tibial spurs 1, 2, 2.

Hosts

Unknown.

Etymology

This specific name means that this species has been collected in China.

Remarks

The other Oriental species of *Ampulicomorpha* are the following:

Ampulicomorpha collinsi Olmi, 1996. The holotype is a female specimen deposited in AEIC and collected in Malaysia (Malaya, Negeri Sembilan, Pasoh Forest Reserve). Further female and male specimens are known from Brunei, China, Indonesia, Malaysia (Sabah, Sarawak) and Philippines. In China the following specimens are known:

Fujian: Mt. Wuyi, 2 males (ZJUC). **Guangdong:** Conghua, Liuxihe, 29-31.VIII.2004, Zaifu Xu leg., one male (ZJUC); Nanling National Nature Reserve, 8.V.2004, Zaifu Xu leg., one male (ZJUC). **Zhejiang:** Kaihua, Mt. Jitian, 19.VIII.2003, Fan Wuqing leg., 2 males (ZJUC).

Ampulicomorpha nepalensis Olmi, 1997. The holotype is a female specimen deposited in CNC and collected in Nepal (Godavari, 6000', 7-13.VIII.1967, Canadian Expedition leg.). Further female and male specimens are known from other Nepalese localities, in addition to Vietnam and Tajikistan.

Ampulicomorpha nigra (van Achterberg, 2000). The holotype is a female specimen collected in Bhutan (Lungtenphu, Thimphu, 2300 m, 13.XI.1998, H.R. Feyen leg.) and deposited in RMNH. No further specimens are known.

Ampulicomorpha taiwanensis Olmi, 1998. The holotype is a female specimen collected in China (Taiwan, Meifeng, 2150 m, 26.IV.1983, H. Townes leg.) and deposited in AEIC. Further female and male specimens are known from other Taiwanese localities, in addition to Indonesia (Sulawesi) and Malaysia (Sabah, Sarawak). In China, in addition to the above holotype, the following specimens are known:

Fujian: Mt. Wuyi, 7.X.1991, Xuexin Chen leg., one male (ZJUC). **Taiwan:** Nantou, Meifeng, 2150 m, VI.1984, VII.1984, Malaise trap, K.S. Lin & K.C. Chou leg., 2 female paratypes (AMNH, TARI); same locality label, VIII.1984, IX.1984, 22-26.VI.1983, three male paratypes (2 in AMNH, one in TARI); same locality label, X.1985, K.S. Lin leg., 2 male paratypes (TARI); same locality label, 15.VII.1982, K.S. Lin & C.N. Lin leg., one male paratype (TARI); same locality label, 24-26.VI.1981, K.S. Lin & W.S. Tang leg., 2 male paratypes (TARI); Nantou, Tungpu, 1200 m, X.1985, Malaise trap, K.S. Lin leg., one female paratype (TARI); same locality label, XI.1985, 2 female paratypes (TARI); same locality label, XII.1985, one female paratype (AMNH); same locality label, XI.1985, 2 female paratypes (AMNH); same locality label, XII.1985, one male paratype (AMNH); Nantou, Tsuifeng, 2300 m, X.1984, Malaise trap, K.S. Lin & K.C. Chou leg., one female paratype (TARI); same locality label, IX.1984, one male paratype (TARI); same locality label, IX.1984, one male paratype (AMNH); same locality label, IX.1985, K.S. Lin leg., one female paratype (TARI); same locality label, XI.1985, one male paratype (AMNH); Nantou, Sungkang, (2100 m, 6.VIII.1984, K.S. Lin leg., one male paratype (TARI); same locality label, X.1985, 2 female paratypes (AMNH); same locality label, X.1985, one female paratype (TARI); same locality label, X.1984, K.S. Lin & K.C. Chou leg., one male para-

type (TARI); Nantou, Lienhuachih, 650 m, IX.1984, Malaise trap, K.S. Lin & K.C. Chou leg., one female paratype (TARI); same locality label, III.1984; XII.1984 (TARI); Nantou, Fenghuangku, 1000 m, 15.IV.1978 (TARI); Nantou, Yu-shih, (1750 m, 4.VIII.1981 (TARI); Taoyuan, Up-Paling-Lalashan, 1110-2130 m, 9.VII.1986, K.C. Chou & C.H. Yang leg., one male paratype (TARI); Taoyuan, Paling, 8-9.VII.1986 (TARI); same locality label, 800 m, 3-5.V.1983 (TARI); Chiayi, Alishan, 2400 m, 5-9.VIII.1981, L.Y. Chou & S.C. Lin leg., 2 male paratypes (TARI); Chiayi, Mt. Alishan, 16.VI.1965 (TARI); Taichung, Shengkuang, 1350 m, 20.IX.1968 (TARI); Taichung, Chiapaotai, 750 m, 14-18.X.1980 (TARI); Taichung, Kukuan, 730 m, 14-17.X.1980 (TARI); Taichung, Anmashan, 2275 m, 6-9.VII.1979 (TARI); Taichung, Wuling, 1900 m, 20-29.VI.1979 (TARI); Taichung, Chingsan, 1100 m, 8.V.1989, J. Heppner & H. Wang leg.) (2 male specimens identified erroneously as *Embolemus ruddii* Westwood by Olmi, 1996,

p. 117)(AEIC); Hualien, Tayuling, 2560 m, 24-26.VI.1977 (TARI); Ilan, Mt. Tapin, 1950 m, 26-28.VII.1983 (TARI); Nantou, Wushe, 1150 m, 1-8.X.1982; 10.V.1983; 15.V.1983 (AEIC, TARI); same locality label, 2.IV.1983; 26.IV.1983; 19.IV.1983; 7.IV.1983; 10.V.1983; 15.V.1983; 22.V.1983; 29.V.1983; 3.V.1983; 9.III.1983; 16.III.1983, Henry Townes leg. (identified erroneously as *Embolemus ruddii* Westwood by Olmi, 1996, p. 117)(CNC); Pingtung, Kenting, 18-23.III.1981 (TARI); Kuan-douchi, 30.III-5.IV.1971, Shui-Chen Chiu leg. (one male specimen identified erroneously as *Embolemus ruddii* Westwood by Olmi, 1996, p. 117 (AEIC).

The opposite sexes of *Ampulicomorpha* species are very different, so that the association is difficult. Waiting for the correct attribution to the females of the above males (maybe by DNA analysis), the following keys to the females and males of the Oriental species of *Ampulicomorpha* can be presented:

KEY TO FEMALES OF AMPULICOMORPHA SPECIES

- 1. Pronotum with incomplete median longitudinal furrow, only visible near posterior margin of pronotum (Fig. 9 in Olmi 1996) *collinsi* Olmi
- Pronotum with complete median longitudinal furrow extended from anterior to posterior margin of pronotum (Fig. 20 in Olmi 1996) 2
- 2. Palpal formula 4/2 *nigra* (van Achterberg)

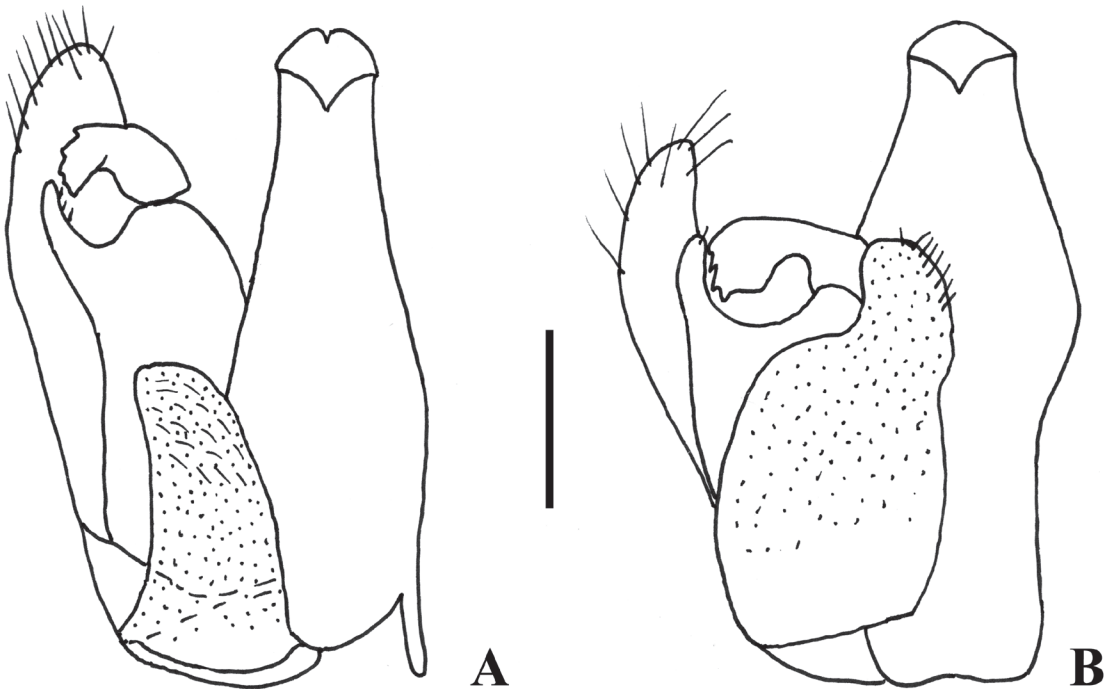


Fig. 2. Male genitalia of Oriental species of *Ampulicomorpha* (right half removed). A: *A. taiwanensis*: paratype from China, Taiwan, Meifeng; B: *A. collinsi*: paratype from Malaysia, Pasoh Forest Reserve. Scale bar 0.07 mm.

- Palpal formula 5/2 or 6/3 3
- 3. Dorsal surface of propodeum with 2 fading median longitudinal keels *taiwanensis* Olmi
- Dorsal surface of propodeum with 2 distinct median longitudinal keels 4
- 4. Dorsal surface of propodeum with trapezoid basal area near anterior margin (Fig. 1 in Olmi 1997) *nepalensis* Olmi
- Dorsal surface of propodeum with square basal area near anterior margin *sinensis* Xu, Olmi & Guglielmino **sp. nov.**

KEY TO MALES OF *AMPULICOMORPHA SPECIES*

(Males unknown in *A. nigra* (van Achterberg))

- 1. Distal apex of dorsal membranous process of paramere smooth, without papillae or hairs or scales (Fig. 2A) *taiwanensis* Olmi
- Distal apex of dorsal membranous process of paramere with hairs and occasionally also with papillae or scales (Figs. 2B, 1A, 1B). 2
- 2. Dorsal membranous process of paramere with many distal hairs, without papillae or scales (Fig. 2B) *collinsi* Olmi
- Dorsal membranous process with hairs and papillae or scales (Figs. 1A, B). 3
- 3. Dorsal membranous process of paramere with numerous distal hairs and papillae (Fig. 1A) *nepalensis* Olmi
- Dorsal membranous process of paramere with some distal hairs and numerous scales, without papillae (Fig. 1B). *sinensis* Xu, Olmi & Guglielmino **sp. nov.**

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