

# A new species of the genus *Opalimosina* Roháček (Diptera: Sphaeroceridae) from Liaoning, Northeast China

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**Abstract:** This paper describes and illustrates a new species of *Opalimosina* Roháček from Liaoning, Northeast China, namely *Opalimosina (Opalimosina) verruca* sp. nov., and provides a distribution map and a key to Chinese *Opalimosina*. The genus *Opalimosina* is a new record for Liaoning, Northeast China.

**Key words:** Acalypttratae; small dungflies; taxonomy; key

中国东北辽宁乳小粪蝇属 *Opalimosina* 一新种 (双翅目: 小粪蝇科)

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**摘要:** 记述中国东北辽宁产乳小粪蝇属 *Opalimosina* 1 新种, 疣乳小粪蝇(♂) *Opalimosina (Opalimosina) verruca* sp. nov., 提供了新种形态描述和特征插图, 以及新种分布信息和中国该属检索表; 该属首次在辽宁记录。

**关键词:** 无翅瓣类; 小粪蝇; 分类; 检索表

## Introduction

The genus *Opalimosina* Roháček, 1983 was originally described based on the type species *Limosina mirabilis* Collin, 1902 from Europe. It includes 4 subgenera belonging to the family Sphaeroceridae and the subfamily Limosiniinae. Fifteen *Opalimosina* species have been described throughout the world, including two species from the Australasian/Oceanian, two from the Nearctic, one from the Neotropical, seven from the Oriental and twelve from the Palearctic (Roháček 1983; Papp 1991; Hayashi 1989, 2009, 2010; Su *et al.* 2013), while five species of *Opalimosina* from China were recognized. Here, a new species of *Opalimosina* from Liaoning, Northeast China is described and illustrated. Its distribution map and a key to Chinese *Opalimosina* are provided.

Members of *Opalimosina* are safely diagnosed by  $t_2$  chaetotaxy (a proximal *ad*, a distal *ad* and a distal *d* and a distal *pd*, an *av* below the middle, and a *va*), a large epiphallus of basiphallus, and  $t_3$  of the subgenus *Opalimosina* usually with a distinctly curved preapical

spine aside from *Opalimosina (Opalimosina) stepheni* Papp.

## Material and methods

The specimens examined were collected by sweep nets in Liaoning Province, Northeast China and preserved in vials with a solution of water and 80% ethyl alcohol. In the laboratory, the whole abdomen was desclerotized in a solution of water and 10% potassium hydroxide until semi-transparent, then rinsed in water and placed into a cavity slide with glycerol for further examination and dissection. The illustrations were finished under a Leica DM 2000 compound microscope fitted with a drawing tube. The type specimens are deposited in the Liaoning Key Laboratory of Urban Integrated Pest Management and Ecological Security, Shenyang University, China (LKLSU). The following abbreviations are used. *Pvt* — postvertical bristle; *if* — interfrontal bristle; *hu* — humeral bristle; *ac* — acrostichal bristle; *dc* — dorsocentral bristle; *stpl* — sternopleuron bristle; *sc* — scutellar bristle; *av* — anteroventral bristle; *ad* — anterodorsal bristle; *pd* — posterodorsal bristle; *va* — ventroapical bristle; *t<sub>2</sub>* — mid tibia; *t<sub>3</sub>* — hind tibia; *mt<sub>2</sub>* — mid basitarsus; *C* — costa; *Cs<sub>2</sub>*, *Cs<sub>3</sub>* — 2nd, 3rd costal sector; *R<sub>2+3</sub>*, *R<sub>4+5</sub>* — 2nd, 3rd branch of radial vein; *r-m* — radial-medial (= anterior, *ta*) cross-vein; *dm* — discal medial cell; *dm-cu* — discal medial-cubital (= posterior, *tp*) cross-vein; *S<sub>5</sub>* — sternite 5. Morphological terminology follows that of Hayashi (2010).

## Taxonomy

### Key to known species of Chinese *Opalimosina* (male)

1. Between occi and occae an additional small inclinate seta. Male *f<sub>2</sub>* basally with a group of bristles (Roháček 1985, Fig. 983) (subgenus *Hackmanina*)..... *O. (H.) czernyi* (Duda)
- No additional seta between occi and occae. Male *f<sub>2</sub>* simply haired (subgenus *Opalimosina*)..... 2
2. *t<sub>3</sub>* with a very long preapical spine (Roháček 1985, Fig. 1063) ..... 3
- *t<sub>3</sub>* with a very short preapical spine (Fig. 1) ..... 4
3. *C* ending at *R<sub>4+5</sub>*. *S<sub>5</sub>* with a longitudinally deep incision separating the left part from the right part, posterior margin of each part with 4 rows of comb-like spines (Hayashi 1989, Fig. 4).....  
..... *O. (O.) pseudomirabilis* Hayashi
- *C* distinctly beyond *R<sub>4+5</sub>*. *S<sub>5</sub>* with a transversely arc-shaped membraneous unpigmented stripe separating the posteromedial part from the anterior part, posterolateral part with two groups of long and dense bristles and posterior margin of each side with a row of comb-like spines (Roháček 1985, Fig. 1034).....  
..... *O. (O.) mirabilis* (Collin)
4. Ventral margin of cerci slightly protruding (Su *et al.* 2013, Fig. 1e). Ventral margin of surstylus with some long bristles slightly shorter than two long bristles on posterior corner (Su *et al.* 2013, Fig. 1f).....  
..... *O. (O.) differentialis* Su
- Cerci ventrally not producing (Fig. 4). Ventral margin of surstylus with some short bristles distinctly shorter than two long bristles on posterior corner (Fig. 3)..... 5
5. Posteromedial part of *S<sub>5</sub>* with a dark transversely moon-like area and posteromedial margin with a pair of smaller cuticular structures (Su *et al.* 2013, Fig. 2f). Postgonite anteriorly strongly curved and posteriorly straight and apically very narrow (Su *et al.* 2013, Fig. 2c) ..... *O. (O.) prominentia* Su

- . Posteromedial part of  $S_5$  with two dark longitudinally moon-like areas and posteromedial margin with a pair of large densely haired lobes (Fig. 5). Postgonite anteriorly and posteriorly curved and apically very expanding (Fig. 2)..... *O. (O.) verruca* Deng & Su **sp. nov.**

***Opalimosina (Opalimosina) verruca* Deng & Su **sp. nov.** (Figs. 1–6)**

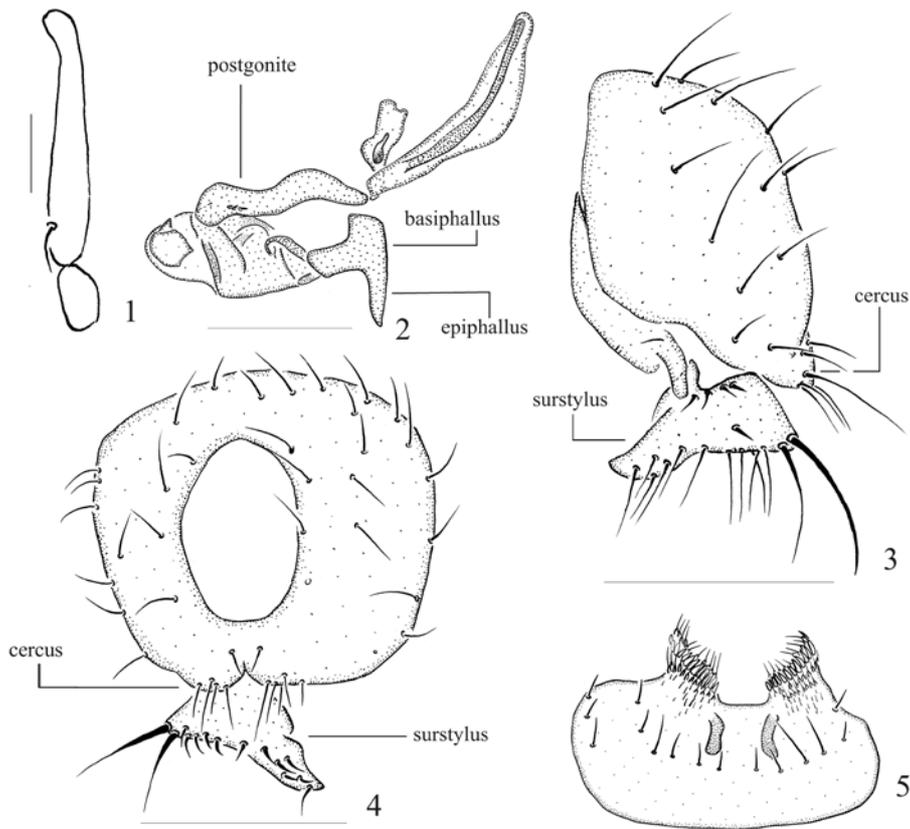
Description. Male. Total body length approx. 1.3 mm, wing length approx. 1.0 mm. General color brownish black.

Head. Brownish black. One pair of *pvt* small and cruciate. *3 if*, the most anterior shorter. Eye height about 1.5 times as long as genal height. Carina protruding between antennae. Arista about 4 times as long as antenna, relatively shortly ciliated.

Thorax. Brownish black. 1 long *hu*. 2 *dc*, the anterior slightly longer than thorax setulae. 6 rows of *ac* in front of suture. Only prescutellar medial *ac* pair slightly enlarged. 2 *stpl*. 2 *sc*.

Leg. Brown. *t*<sub>3</sub> short preapical spine (Fig. 1), slightly overpassing its apex. Ratio *t*<sub>2</sub> : *mt*<sub>2</sub> = 2.2.

Wing. With pale brownish membrane, veins brown. *C* ended at  $R_{4+5}$ ;  $R_{2+3}$  straight, apically slightly curved up to *C*.  $R_{4+5}$  straight, apically not curved up to *C*.  $Cs_2$  :  $Cs_3$  = 1.11. Distance between *r-m* and *dm-cu* about 2.1 times as long as the width of *dm-cu*. Alula small, narrow, pointed. Halteres with yellowish brown stem and dark brown knob.



Figures 1–5. *Opalimosina (Opalimosina) verruca* sp. nov. 1. Hind tibia, anterior view; 2. Aedeagus and associated parts, lateral view; 3. Genitalia, lateral view; 4. Genitalia, caudal view; 5. Sternite 5, ventral view. Scale bars = 0.1 mm.

Abdomen. Brownish black. There are two dark longitudinally moon-like areas in posteromedial part of  $S_5$  (Fig. 5). Bristles of  $S_5$  comparatively short and sparse (Fig. 5).  $S_5$  posteromedially without incision but with a pair of dark densely haired lobes (Fig. 5), each lobe apical part with a row of thick comb-like blunt spines and strongly reduced spines and on warts.

Genitalia. Epandrium with very short and sparse bristles (Figs. 3, 4). Cerci reduced and fused with epandrium (Figs. 3, 4). Surstylus ventrally setose (Figs. 3, 4), its posterior corner with a pair of long and robust bristles, its outer side with some very short bristles. Aedeagal complex (Fig. 2). Basiphallus with relatively straight epiphallus (Fig. 2). Distiphallus similar to that of *O. (O.) simplex* and *O. (O.) collini* but differing in detail. Postgonite with enlarged distal 1/4 part and posteriorly provided with 3 very short spines (Fig. 2). Ejaculatory apodeme small (Fig. 2).

**Holotype.** ♂, **China**, Liaoning, Benxi City, Benxi County, Liaobiangou, 505 m, N41°07'4.08", E124°31'24.31", 02-VII-2015, leg. Zhiqiang CHENG (LKLSU). **Paratypes.** 3♂, same data as the holotype (LKLSU).

Female. Unknown.

Etymology. The specific epithet is derived from the Latin word *verruca* meaning wart, referring to the posteromedial lobes of male  $S_5$  apart from two rows of comb-like apical blunt spines, the other spines strongly reduced and extending to on warts.

Distribution. China (Liaoning) (Fig. 6).

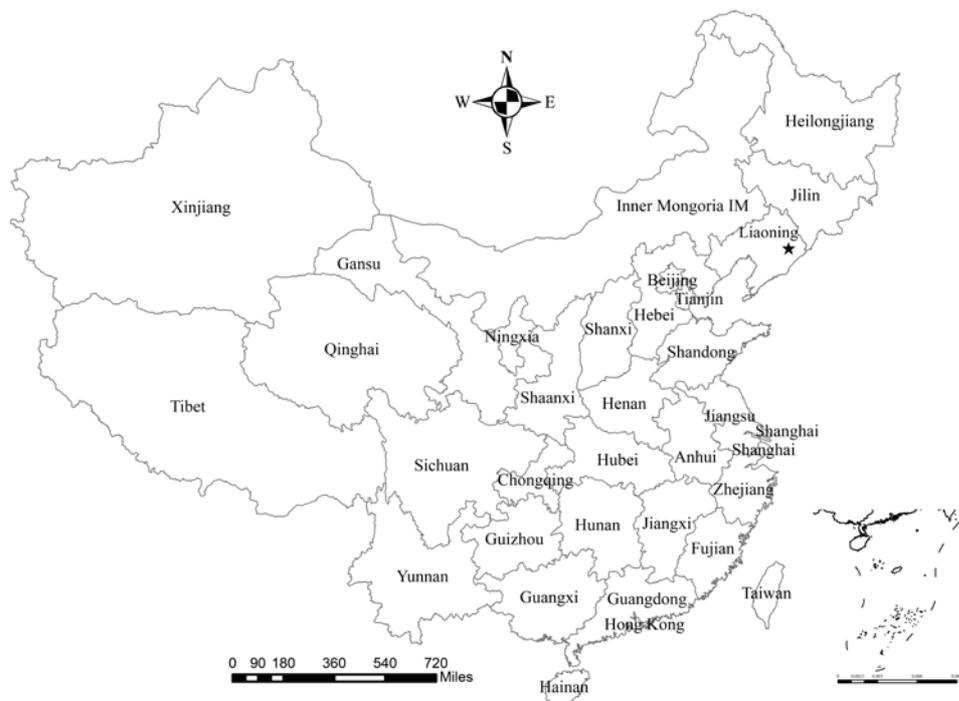


Figure 6. Distribution of *Opalimosina (Opalimosina) verruca* sp. nov.

Remarks. The new species is closely related to *O. (O.) monticola* and *O. (O.) prominentia* in preapical spine of  $t_3$ , cerci, surstylus and epiphallus of basiphallus. However, it distinctly differs from the latter in the shape of sternite 5 and postgonite.

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