

First record of *Prolauthia* Rübsaamen (Diptera: Cecidomyiidae: Cecidomyiinae) in the Oriental Region

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Abstract: The first record of the Ledomyiini genus, *Prolauthia* Rübsaamen, 1915 in the Oriental Region as well as in China is given including one new species, *Prolauthia wuliangensis* **sp. nov.**, collected from Wuliang Mountain, Yunnan in Southwestern China. This new species is described, illustrated and photographed in this present paper. The generic diagnosis is updated to include this new species, and the comparison between the new species and the only type species is discussed.

Key words: Ledomyiini; *Prolauthia wuliangensis*; taxonomy; China

原劳瘿蚊属 *Prolauthia* Rübsaamen 东洋区首纪录 (双翅目: 瘿蚊科: 瘿蚊亚科)

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摘要: 首次报道木瘿蚊族的原劳瘿蚊属 *Prolauthia* Rübsaamen, 1915 在东洋区及中国的分布, 记述来自中国西南部云南无量山的 1 新种: 无量原劳瘿蚊 *Prolauthia wuliangensis* **sp. nov.**。对原劳瘿蚊属的属征进行了修订, 并对该新种与该属模式种进行了比较讨论。

关键词: 木瘿蚊族; 无量原劳瘿蚊; 分类; 中国

Introduction

The Ledomyiini genus, *Prolauthia* Rübsaamen, was erected in 1915 with its type species, *Cecidomyia circumdata* Winnertz, 1853 from Germany (Gagné & Jaschhof 2021). Before the present study and for nearly 108 years since *Prolauthia* was established, there have been no

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other species of *Prolauthia* described anywhere in the world. In Southwestern China, a new species, *Prolauthia wuliangensis* **sp. nov.** was recently discovered from an early collection of specimens in Wuliang Mountain, Jingdong Yi Autonomous County, Pu'er, Yunnan Province. This is the first record of the genus *Prolauthia* in the Oriental Region as well as in China. This new species is herein described, illustrated and photographed with a comparison between the new species and the only type species. To include this new species, a revised generic diagnosis of *Prolauthia* is given.

Material and methods

The rare adult midge specimens were preserved in 90% ethanol in the field immediately after collection by Malaise traps. For morphological observation, all of the ethanol preserved specimens were dissected into four parts: head, thorax without wings, abdomen and wings. They were then mounted on slides using Canada balsam. The morphological terminology follows Gagné (1981). The holotype and paratypes are all deposited in Institute of Entomology, College of Life Sciences, Nankai University (NKUM), Tianjin, China. All figures are based on the holotype of this new species (slide number: NKUCecid. No. BE19001). Figures 1 and 2 are line drawings and Figure 3 is photographed by microscope and photomontaged by Auto-Montage software (Helicon Focus 6.7.1 Pro).

Taxonomy

Genus *Prolauthia* Rübsaamen, 1915, new record to the Oriental Region

Prolauthia Rübsaamen, 1915: 505. Type species: *Cecidomyia circumdata* Winnertz, 1853; by monotypy.

Prolanthis Neave, 1940: 913, misspelling of *Prolauthia*.

Revised Diagnosis. Eyes connected on vertex. Ocelli absent. Antenna having 11–12 flagellomeres, all uninodal with a shorter neck and subcylindrical node except for the last one, first and second fused. Wing normally broad; vein R_5 bent upward at basal 2/5, joining vein C at the basal 4/5 to 9/10 of wing, distinctly before the apex; vein CuA forked. Legs having five tarsomeres, with the first one distinctly much shorter than the second one. Male genitalia having the slender gonocoxite with two distinct mediobasal lobes, one setulose dorsal lobe and the other mostly glabrous ventral lobe wholly clasping aedeagus; gonostylus prolonged, at least distinctly longer than half of gonocoxite, with a distal tooth. Cerci with a depression forming two lobes; hypoproct complete and undivided, almost fingerlike, without any modifications or lobes. Aedeagus prolonged, medioventrally surrounded with a transparent, or sclerotized, or other modified tegmen. Female ovipositor very short, with the one-segmented cerci divided into two rounded lobes apically.

Comments. The latest diagnosis of the genus *Prolauthia* was provided by Fedotova (2014). In this paper, the generic diagnosis is revised to show an updated one to include this new species. *Prolauthia* is characterised in the tribe Ledomyiini by the representative extremely prolonged aedeagus medioventrally surrounded with a distinct tegmen. According to Skuhravá (1997), this genus is also distinguishable from the other Ledomyiini genera by

the unique following combination of these characters: eyes connected on vertex; wing normally broad, with the vein CuA forked; gonocoxite with the ventral mediobasal lobe almost wholly clasping aedeagus; gonostylus prolonged, at least distinctly longer than half of gonocoxite; and hypoproct simply fingerlike, without any modifications or lobes.

***Prolauthia wuliangensis* Jiao, Wei & Bu sp. nov.** (Figs 1, 2, 3)

<http://zoobank.org/urn:lsid:zoobank.org:act:8C0A6FB3-3107-42D9-B3E1-C496A2EBF3F2>

Description. Body color yellow brown. Body length: 1.11–1.13 mm ($n = 3$). Wing length (measured from the base): 1.10–1.11 mm ($n = 3$). Wing width: 0.54–0.55 mm ($n = 3$).

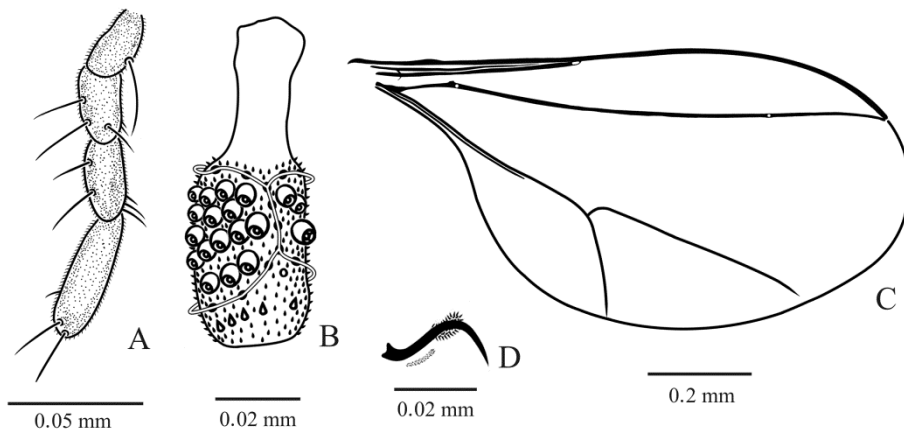


Figure 1. *Prolauthia wuliangensis* sp. nov. (Male holotype, NKUCecid. No. BE19001). A. Palpus, lateral view; B. Third flagellomere, ventral view; C. Wing, dorsoventral view; D. Mid tarsal claw with empodium and pulvillus, lateral view.

Head (Figs. 1A, 1B, 3A). Eye bridge 4–5 facets long in the middle of vertex. Palpus sparsely setose, including 4 segments, progressively longer from first to fourth (Figs 1A, 3A). Postvertical peak missing. Scape larger than pedicel, both covered with setae ventrally. Antenna having 12 flagellomeres (Figs 1B, 3A), all with the node covered with many horseshoe-shaped alveoli at the distal 2/3 and microtrichia elsewhere; each node with two laps of mostly latitudinal, appressed, band-shaped circumfila, subbasally and apically respectively, linked by two similar longitudinal circumfila, and 2 whorls of long, strong, and irregular setae, one at the subbasal and the other at the subapex. 3rd male flagellomere (Figs 1B, 1C) with the node 1.57–1.59 times as long as wide and the neck 2.57–2.61 times as long as wide, 0.73–0.76 times length of node.

Thorax (Figs 1C, 1D, 3B–D). Wing (Figs 1C, 3C) hyaline, 2.02–2.03 times as long as wide, sparsely covered with narrow scales and setose. Rs barely visible; Sc slightly weak; R_1 bent upward, joining C at the basal 1/3 of wing, with a longer pore near the apex; R_5 bent upward at basal 2/5, joining C at the basal 7/8 of wing, with two pores at basal 1/8 and distal 1/4, respectively; M_3 almost invisible; CuA forked; vein CuP parallel with the stem of CuA. Legs covered with narrow scales and sparse setae. Tarsal claw (Figs 1D, 3D) untoothed on all ledgs; empodium upwardly curved, setulose, half length of the claw; pulvillus flagelliform and slightly bent upward, 1/4 length of the claw.

Abdomen (Fig. 3E). Each tergite and sternite covered uniformly with scales. First to

sixth tergites stripe-shaped, with a regularly single, posterior row of setae, and with one anterior pair of trichoid sensilla, covered with many lateral setae and central setae; seventh and eighth tergites respectively reduced to one strongly sclerotized and linear band. Second to sixth sternites subrectangular with an irregular but mostly single, posterior row of setae, and with one anterior pair of closely set trichoid sensilla, and covered with many lateral and central setae; seventh sternite as sixth but narrower, except for many lateral and central setae; eighth sternite as seventh but much smaller. Male genitalia (Figs 2A–C): gonocoxite slender and strong, covered with many scattered longer setae, with two distinct gonocoxal mediobasal lobes: one stouter and distinctly shorter, densely setulose dorsal lobe away from aedeagus, and the other slender and extremely longer, mostly glabrous ventral lobe wholly clasping aedeagus, three times the length of the former and only slightly shorter than aedeagus, covered with one longer apical setae; gonostylus prolonged, approximately $3/4$ length of gonocoxite, covered with dense microtrichia at the basal $1/3$ and sparse setae elsewhere, wholly curved evenly inward, and distally with a distinctly strongly sclerotized distal tooth; cerci separated with a deep and narrow depression forming two broad, fingerlike lobes, each with one apical setae; hypoproct longer than cerci, with the distal margin rounded, covered with two apical setae; aedeagus extremely prolonged and tapered, distinctly longer than gonocoxite, reaching the highest level the gonostylus is able to stretch, medioventrally surrounded with a strongly sclerotized, pigmented and U-shaped tegmen with two sides darker than the center.

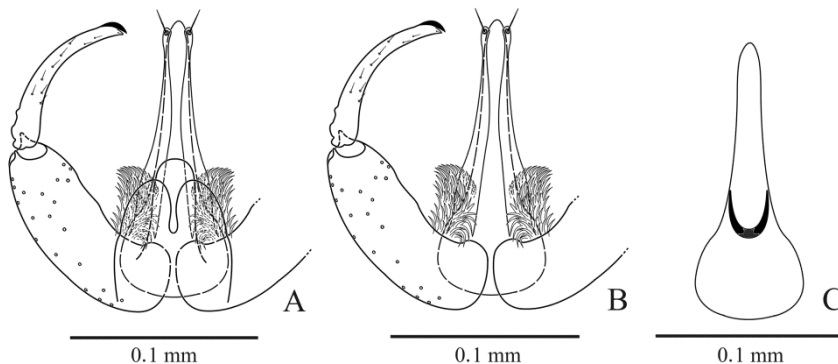


Figure 2. *Prolauthia wuliangensis* **sp. nov.** (Male holotype, NKUCecid. No. BE19001). A. Genitalia, most of right gonopod and the setae on cerci and hypoproct removed, dorsal view; B. Genitalia, cerci, hypoproct and most of right gonopod removed, dorsal view; C. Aedeagus, ventral view.

Female is unknown.

Holotype. ♂, **China**, Yunnan, Pu'er, Jingdong Yi Autonomous County, Wuliang Mountain, Manwan, 24.41°N, 100.83°E, 30-V-2001, Jun LI leg., altitude 1600 m, Malaise trap, NKUCecid. No. BE19001. **Paratypes.** 2♂, same data as holotype, NKUCecid. No. BE19002–003. The holotype and paratypes are both deposited in NKUM.

Distribution. Oriental Region (Southwestern China: Yunnan: Wuliang Mountain).

Etymology. The specific epithet *wuliangensis* refers to Wuliang Mountain, where this new species was discovered.

Diagnosis. This new species *Prolauthia wuliangensis* **sp. nov.** is characterized by the unique male genitalia with the prolonged aedeagus medioventrally surrounded with a strongly sclerotized U-shaped tegmen.

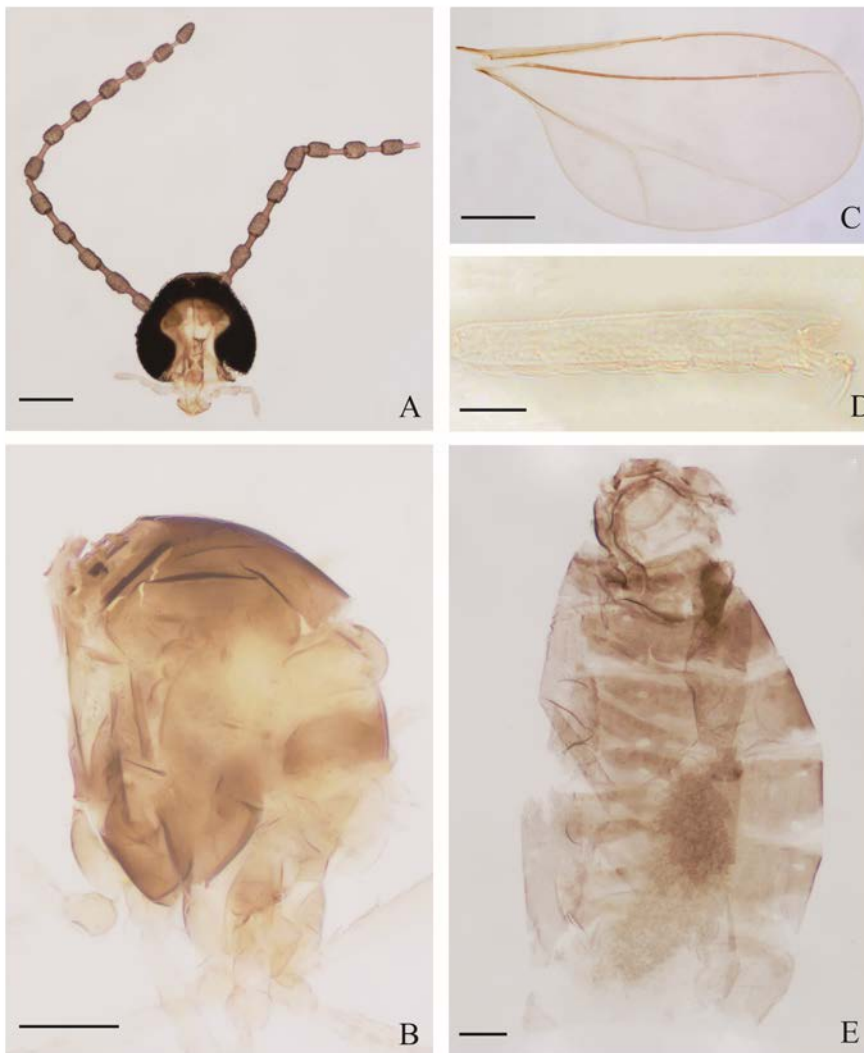


Figure 3. *Prolauthia wuliangensis* **sp. nov.** (Male holotype, NKUCecid. No. BE19001, photomontaged by Auto-Montage Essentials software). A. Head, anterior view; B. Thorax, wings and distal part of legs removed, lateral view; C. Wing, dorsoventral view; D. Mid fifth tarsomere with tarsal claw, lateral view; E. Abdomen without genitalia, dorsal view. Scale bars = 100 μ m (A, B); 200 μ m (C); 20 μ m (D); 50 μ m (E).

Discussion. In the genus *Prolauthia*, *P. wuliangensis* **sp. nov.** is close to the type species *P. circumdata* with the similar slender gonostylus and prolonged aedeagus, but can be easily distinguished by the uniqueness of the male genitalia with the aedeagus medioventrally surrounded with a strongly sclerotized U-shaped tegmen. By contrast, *P. circumdata* possesses the male genitalia with the aedeagus medioventrally with a fine membranous tegmen.

As for the biology, only the larvae of *P. circumdata* are known to develop as inquilines in galls of *Dasineura crataegi* (Winnertz, 1853) on *Crataegus oxyacantha* (Rübsaamen 1915; Fedotova 2014). Therefore, there is still much more to discover about the fauna and biology of the other *Prolauthia* species both in the Oriental Region and around the world.

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Nomenclatural acts

The ZooBank Life Science Identifier (LSID) for this publication is: <http://zoobank.org/urn:lsid:zoobank.org:pub:E97E0785-5B42-4BCF-B8E8-8DB0290CF65C>.

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