Molpa: A newly recorded genus (Orthoptera: Tettigoniidae: Phaneropterinae) from China

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Abstract

The genus Molpa Walker was previously considered to be disjunctly distributed in broad-leaf rain forests in India and Malaysia. Here we report one new species Molpa dulongensis sp. nov. from subtropic broad-leaf rain forests in southwestern Yunnan Province in China. This is a part of the Indo-Burma biodiversity hotspot area. So we can infer that Molpa is continuously distributed in broad-leaf rain forests found in Oriental Region. Redescription of the genus Molpa and description of the new species Molpa dulongensis sp. nov. are provided. The types are deposited in Insect Collection of Institute of Zoology, Chinese Academy of Sciences, Beijing, China (IZCAS).

Key words: Orthoptera, Tettigoniidae, Phaneropterinae

Introduction

Molpa is established for the type species Molpa bilineolata in Sir Lanka by Walker (1870). Afterwards, Molpa latipennis was described from Sumendana by Dohrn (1906). Additionally, type species P. ceylonicus of another genus Pyrgophylax Brunner von Wattenwyl was synonymized as M. bilineolata by Kirby (1906). Moreover, Pyrgophylax also includes other two species P. emarginatus in Borneo and P. spathulatus from southeastern India. In summary, Molpa is disjunctly distributed in India subcontinent and Malaysia and includes four species. Here, one new species, M. dulongensis, from tropical rain forests in eastern margin of Himalaya is described, implying that Molpa might be continuously distributed in India, Indo-Burma and Malaysia.

Molpa Walker, 1870

Type species: Molpa bilineolata Walker, 1870
Molpa Walker, 1870. 3:479; Kirby, 1906.2:423; Dohrn. 1906. 67:358
Pyrgophylax Brunner von Wattenwyl, 1891; Kirby, 1906.2:423 (syn.); Dohrn. 1906. 67:358 (syn.).

Generic redescription. Medium-sized for typical phaneropterine tettigoniids. Head conical, smooth. Face distinctly declined posteriorly. Vertex of fastigium obtuse, protruding upwards, much narrower than inflated scapus of antennae, separated, with vertex of occiput by inflated basal segments of antennae. Vertex of occiput conical, angularly protruding, dorsally with a minute sulcus. Eyes slightly rounded, greatly bulging. Antennae longer than body, basal segment distinctly inflated and prolonged, flagellum thread-like, slender, long. Pronotum elongate and slightly broadened posteriorly. Pronotal disk smooth, with an incomplete longitudinal median line and without lateral carinae; anterior margin approximately straight, posterior margin with an indistinct broadly obtuse concavity; median transverse furrow “V”-like; lateral lobe longer than deep, with anterior margin straight, ventral margin oblique posteriorly; posterior margin slightly obtuse; humeral sinus distinct. Tegmen narrow, elongate,
shorter than hind wing. Tegmen with anterior and posterior margins approximately parallel in middle area; anterior margin distinctly expanding outwards about at apical 1/3 area, and then tegmen slightly widened in apical 1/3 area. Costa indistinct; subcostal vein and radial vein joined at base, then separated but closely abutted together prior to apical part of tegmen; RS bifurcated, branching before middle of R vein; apical margin obliquely truncate; apex of tegmen rounded. Male stridulatory file arched, with densely packed stridulatory teeth; male right stridulatory area with distinct mirror. Hind wing translucent with exception of apical area; anal area distinctly broadened. Legs slender, long. Anterior coxae armed with a sharp spine. Anterior and median femora with small spines on ventro-anterior margin; posterior femur with a few spines only near apex on ventro-posterior margin. Anterior tibiae with tympanum conchate on both sides, widened at and abruptly constricted below tympana. Median tibiae dorsally with distinct groove, with or without dorsal spines; posterior tibiae with dorsal spines on both sides. Male abdomen short, Subgenital plate elongate, with notch at apex; styli leaf-like, strongly dilated. Male cerci long, incurved.

Female similar to male. Cerci conical. Ovipositor short, falcate, with distinct teeth on dorsal margin.

Included species. *Molpa bilineolata* Walker, 1870 (Sri Lanka); *Molpa emarginata* (Dohrn, 1892) (Malaysia: Borneo); *Molpa latipennis* Dohrn, 1906 (Malaysia: Sumatra); *Molpa spathulata* (Bolivar, 1900) (India: Tamil Nadu); *Molpa dulongensis* sp. nov. Wu & Liu (China).

Distribution. Sri Lanka; India; China; Malesia (Borneo, Sumatra).

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**FIGURE 1.** Distribution map of the distribution *Molpa* species.

**FIGURE 2.** *Molpa dulongensis* Wu & Liu sp. nov. a. In nature. b. Ecological habitat.

**Molpa dulongensis** Wu & Liu sp. nov.

http://lsid.speciesfile.org/urn:lsid:Orthoptera.speciesfile.org:TaxonName:500411

Description. Male (holotype). Second segment of antennae short, third segment long, fourth segment as half as third, subsequent segments gradually becoming short one by one. Tegmen not translucent, with obliquely truncated apical margin. Stridulatory file with teeth densely arranged in basal half, and gradually sparsely arranged outwards. Anterior femur with 4-6 indistinctly small spines near apex on ventro-anterior margin; mid femur with 4-6 indistinctly small spines on ventro-anterior margin; hind femur slender, longer than two thirds of tegmen, not reaching apex of tegmen, only with 2 ventro-anterior spines near apex. Anterior tibiae with 1 distinct tiny dorso-anterior spine over tympana; 5 sparsely-arranged small spines on ventro-anterior margin and 5-6 dorso-posterior spines; hind tibiae slender, longer than hind femur, with 27-29 anterior and 30-31 posterior spines on dorsal margins, and 16-17 spines on each ventral margin.

Male genitalia. Male 10th abdominal tergum posteriorly elongate, much longer than adjoining tergite; central portion of basal half with a tongue-like puncture; apical half approximately trapezoid in dorsal view, with truncated apical margin. Cerci sinuate in dorso-lateral view, most robust at base, gradually constricted towards middle, slightly broadened near middle, then re-constricted, and strongly incurved towards apex; apex shaping into a sharp deflexed hook. Subgenital plate broadest at base, distinctly constricted in middle, and then gradually widened towards emarginated apex; lateral lobe truncated at apex; styli leaf-like, flat, strongly dilated, with approximately truncated apex.

Coloration. Generally light green when alive. Head, pronotum and legs light green, with irregular dark green spots. Basal segment of antennae yellowish brown, with faint black on dorsal surface, other segments blackish brown with yellowish brown apex; 2-4 blackish brown segments alternating 2-3 white segments near and after middle. Compound eyes yellowish brown. Meso- and metanota yellowish green; metapleura with a yellow spot.
Each tarsus yellowish brown, with blackish margins. Tegmen light green; anterior margin blackish brown after middle; several veins in costal areas, and radial branches mostly whitish. Cells in Radius, middle and Cubital areas with several clusters of irregularly arranged black spots. Hind wings pale yellow, translucent; exposed apical area green, with yellowish brown or blackish margins. Abdomen green, each tergum orange with a whitish yellow spot on lateral margin; sternum yellowish or blackish brown; membranous areas between tergum and sternum slightly brown. Tenth abdominal tergum and subgenital plate lightly brown. Cerci brown, with black granules at basal half and black apex.

Female unknown.

Measurements of male (mm). Length of body 21.50; length of pronotum 6.09; length of tegmen 37.89; width of tegmen 9.05; greatest width of tegminal dorsal portion 3.00; length of hind wing 42.49; length of anterior femur 6.01; length of middle femur 9.13; length of posterior femur 23.73; length of posterior tibiae 29.74; length of cerci 2.7.

**Etymology.** The new species is named after the type locality.

**Biology.** The species inhabit broad-leaf rain forests at 1300 m elevation. Males produce simple and short calling songs, which include a few long-interval sole tones. They can be attracted to light.

**Discussion.** The new species is distinguished with *Molpa spathulata* (Bolívar) by the coloration of antennae. It distinctly differs from other congeners by the special shape of male cerci described above. In contrast, male cerci of *M. bilineolata* Walker possesses flat apex with a distinct finger-like process, male cerci of *M. latipennis* Dohrn possesses sharp slender apex, and *M. emarginata* (Dohrn) possesses obtuse apex.

**FIGURE 4.** *Molpa dulongensis* Wu & Liu sp. nov. a. Male abdominal apex in lateral view; b. Male cerci in view; c. Male subgenital plate in ventral view.

**Acknowledgements**

We sincerely thank Dr. Changqin Chen in Tianjin for his support and help in research. The study was funded by the National Natural Science Foundation of China (No. 31572308).
References


