

## SYSTEMATICS, MORPHOLOGY AND PHYSIOLOGY

A New Species of *Tricorythodes* Ulmer (Ephemeroptera: Leptohiphidae) from Minas Gerais, Southeastern BrazilLUCIMAR G. DIAS<sup>1</sup> AND FREDERICO F. SALLES<sup>2</sup>

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Uma Nova Espécie de *Tricorythodes* Ulmer (Ephemeroptera: Leptohiphidae) de Minas Gerais, Sudeste do Brasil

RESUMO - *Tricorythodes molinerii* sp. n. é descrita e ilustrada baseada em ninfas do sudeste do Brasil. A espécie nova pode ser distinguida das demais espécies de *Tricorythodes* Ulmer pela seguinte combinação de caracteres: 1) projeção genal presente; 2) palpo maxilar bi-segmentado, com seta apical curta; 3) pronoto com projeções anterolaterais bem desenvolvidas; 4) região dorsal do fêmur anterior com uma fileira transversal de setas; 5) garra tarsal sem denticulos marginais e com um denticulo submarginal de cada lado; 6) brânquia opercular triangular, sombreada com negro e com uma marca esbranquiçada subbasal; e 7) comprimento do corpo grande.

PALAVRAS-CHAVE: Taxonomia, inseto aquático, *Tricorythodes molinerii*, neotrópico, Ephemeroptera

ABSTRACT - *Tricorythodes molinerii* sp. n. is described and illustrated based on nymphs from southeastern Brazil. The new species can be distinguished from other species of *Tricorythodes* Ulmer by the following characters: 1) genal projection present; 2) maxillary palp bi-segmented, with short apical seta; 3) pronotum with well developed anterolateral projection; 4) dorsum of fore femora with a transverse row of setae; 5) tarsal claws without marginal denticles and with one submarginal denticle on each side; 6) operculate gills triangular, shaded with black, and with whitish mark in subbasal zone; and 7) very large size.

KEY WORDS: Taxonomy, aquatic insect, *Tricorythodes molinerii*, Neotropics, Ephemeroptera

*Tricorythodes* Ulmer constitutes one of the most speciose and studied genera of Leptohiphidae (Banks 1913; Traver 1944, 1959; Allen 1967; Molineri 2001, 2002). The genus is known from Neotropical and Nearctic regions, with thirty-nine species described until now (Molineri 2002, Salles *et al.* 2004, Dominguez *et al.* 2005, McCafferty 2005). Of the fifteen species recorded from South America, the following are reported from Brazil: *Tricorythodes arequita* Traver recorded from Rio Grande do Sul state; *Tricorythodes bullus* Allen and *Tricorythodes barbatus* Allen both from Santa Catarina state; *Tricorythodes cristatus* Allen from Serra do Mar, Southeastern Region; and *Tricorythodes australis* Banks known from the states of Mato Grosso, Pará and Paraná (Salles *et al.* 2004). In the present paper, we describe a new species of *Tricorythodes* based on nymphs collected in the state of Minas Gerais, Brazil Southeastern Region.

**Material and Methods**

The material is deposited in the following institutions:

Invertebrate Collection of the Museu Nacional, Universidade Federal do Rio de Janeiro, RJ, Brazil (MNRJ); Instituto-Fundación Miguel Lillo, San Miguel de Tucumán, Tucumán, Argentina (IFML); and Museu Regional de Entomologia, Universidade Federal de Viçosa, MG, Brazil (UFVB).

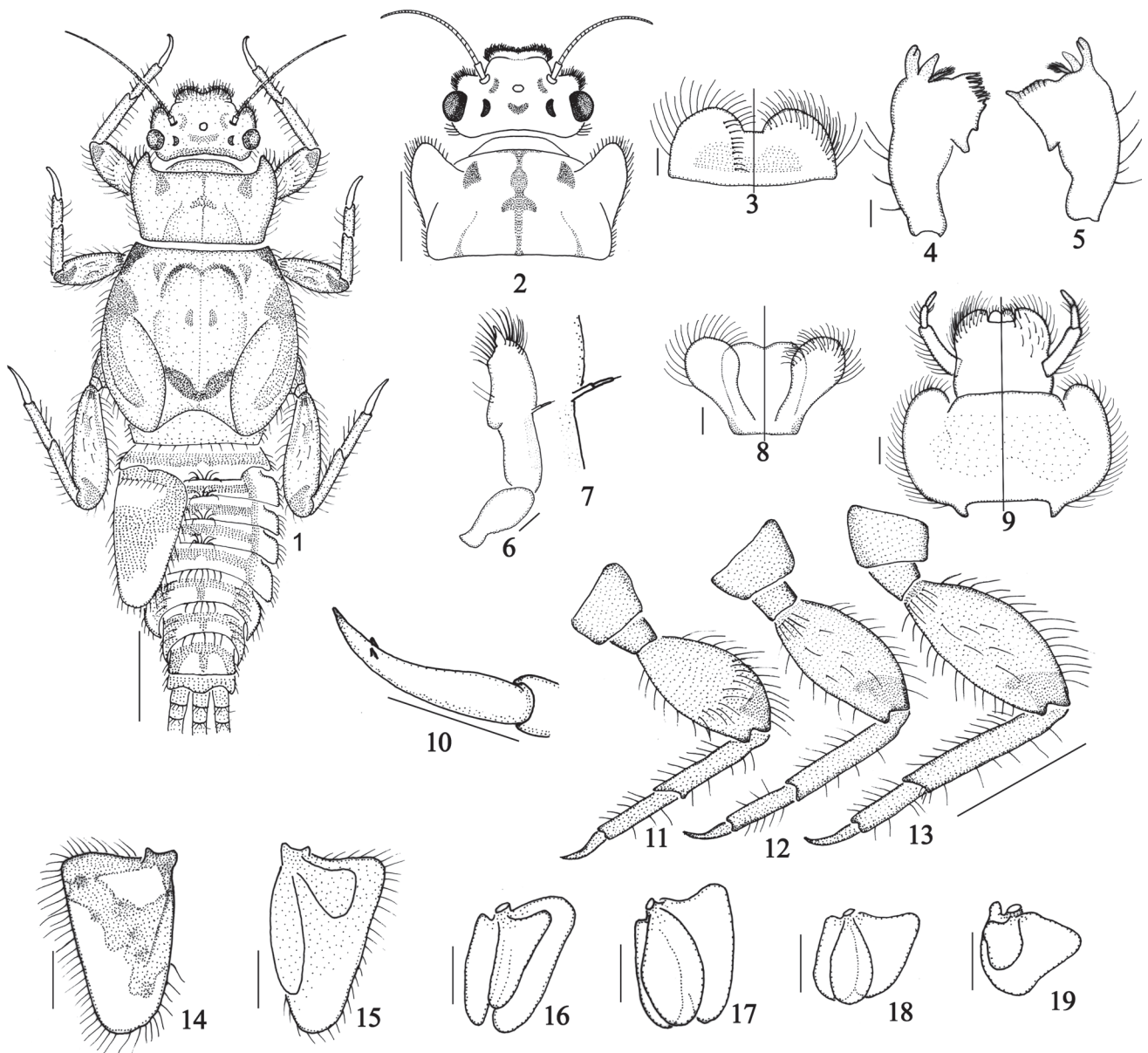
The length of the body, mesonotum and caudal filaments were measured in mature nymphs.

***Tricorythodes molinerii* sp. n.**

Figs. 1-19

**Mature nymph.** Length: body, 6.50-7.95 mm; mesonotum, 1.75-2.30 mm; caudal filaments, 2.90-3.40 mm (five nymphs of type material were measured). General coloration yellowish with blackish marks (Fig. 1).

**Head.** Genal projection present. General coloration yellowish with blackish marks on posterior margin, between ocelli and base of antennae (Fig. 1). Antennae yellowish-translucent. Mouthparts (Figs. 3-9) yellowish; median region of mentum and labrum shaded with black. Maxillary palp



Figures 1-19. *Tricorythodes molinerii* sp. n.: 1. Nymphal habitus (dorsal view). 2. Head and pronotum (dorsal view). 3. Labrum (left - ventral view, right - dorsal view). 4. Left mandible (dorsal view). 5. Right mandible (dorsal view). 6. Maxilla (dorsal view). 7. Maxilla (detail of maxillary palp, dorsal view). 8. Hypopharynx (left - dorsal view, right - ventral view). 9. Labium (left - dorsal view, right - ventral view). 10. Foreleg (detail of tarsal claw). 11. Foreleg. 12. Mid leg. 13. Hind leg. 14. Operculate gill (dorsal view). 15-19. Gills II-VI (ventral view). Scales: Figs. 1-2 and 11-13: 1 mm; Fig. 3-9: 0.1 mm; Fig. 10 and 14 - 19: 0.5 mm

bi-segmented with short apical seta (Fig. 7).

**Thorax.** General coloration yellowish with blackish marks (Fig. 1). Pronotum with anterolateral projection (Fig. 2); coloration yellowish with blackish marks, anterolateral region whitish (Fig. 1). Mesonotum yellowish with blackish diffuse marks on lateral margins (Fig. 1). Metanotum, pleurae and sterna yellow shaded with black. Legs yellowish, shaded with gray in dorsal region; apex of all femora with blackish marks (Figs. 11-13); dorsum of fore femora with a transverse row of setae (Figs. 11); tarsal claws without

marginal denticles and with one submarginal denticle on each side (Fig. 10).

**Abdomen.** General coloration yellowish with blackish marks. Terga yellowish, anterior region of all terga with grayish transverse marks, these marks extending posteriorly in median zone of terga 7-9 (Fig. 1). Sterna 1-6 yellowish shaded with gray, sterna 7-9 shaded with light gray. Lateral margins of abdominal segments 2-7 expanded; segments 7-8 with posterolateral spines bordered with setae (Fig. 1). Operculate gills triangular, shaded with black and with a

whitish subbasal mark (Fig. 14); remaining gills completely shaded with gray, darker at base (Fig. 15-19). Caudal filaments yellowish with whorls of setae at joints.

**Adults.** Unknown

**Etymology.** This species is dedicated to Dr. Carlos Molineri, Instituto Miguel Lillo – Tucumán, Argentina, for his important contribution to the knowledge of the family Leptohiphidae in South America.

**Material.** Holotype: One female nymph, Brazil, Minas Gerais State, Campos Altos, Rio da Prata 09/VIII/2001(MNRJ), C. R. Lugo-Ortiz and F. F. Salles leg. Paratypes: five nymphs, same data as holotype (IFML); six nymphs, same data as holotype (MNRJ).

Other non type material: 10 nymphs, same data as holotype, except, 07/VIII/2001 (UFVB).

### Discussion

Nymphs of *T. molinerii* sp. n. show affinities with *T. barbatus* Allen: both species possess large size, pronotum with well developed anterolateral projection, genal projection, tarsal claws without marginal denticles and abdominal coloration. However, the coloration of the operculate gills (Fig. 14), the bi-segmented maxillary palp (Fig. 7), the more developed projections of the pronotum (Fig. 2), the expanded lateral margins of abdominal segment 7, and segments 7-8 with posterolateral spines (Fig. 1), allow the differentiation between these.

The combination of characters that distinguish *T. molinerii* from the other species of genus, is: 1) genal projection present (Fig. 1); 2) maxillary palp bi-segmented with short apical setae (Fig. 6); 3) pronotum with anterolateral projection (Fig. 2); 4) dorsum of fore femora with a transversal row of setae (Fig. 11); 5) tarsal claws without marginal denticles and one submarginal denticle on each side (Fig. 10); 6) operculate gills triangular, shaded with black and with a whitish subbasal mark (Fig. 14); and 7) large size.

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