

## ***Camelobaetidius francischettii*: a new species of Baetidae (Ephemeroptera) from Brazil**

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### **Abstract**

*Camelobaetidius francischettii*, new species, is described based on nymphs collected from Alagoas and Rio de Janeiro states, Northeastern and Southeastern Brazil, respectively. The species can be distinguished from the other described species of the genus by the following combination of characters: (1) segment 2 of labial palp with distomedial process rounded and strongly produced; (2) fore femora with prominent protuberance; (3) fore tibia with indentation at apex; (4) ventral margin of fore femur and fore tibia entirely scattered with spines; (5) tarsal claws with 34 to 37 denticles; (6) small thoracic gill at the base of fore coxae; (7) prosternum with a single, medial protuberance; (8) paraprocts with ca. 22 marginal small spines; and (9) terminal filament about as long as the length of the 10<sup>th</sup> abdominal segment.

**Key words:** *Camelobaetidius*, new species, Neotropics, nymphs, Baetidae, Brazil

**Resumo:** *Camelobaetidius francischettii*, nova espécie, é descrita com base em ninfas coletadas nos estados de Alagoas e do Rio de Janeiro, Nordeste e Sudeste do Brasil, respectivamente. A espécie pode ser diferenciada das demais espécies do gênero pelas seguintes características: (1) processo distomedial do segundo artigo do palpo labial arredondado e fortemente pronunciado; (2) fêmures anteriores com uma proeminente protuberância; (3) ápice das tíbias anteriores fendido; (4) margem ventral dos fêmures e tíbias anteriores inteiramente cobertas por espinhos; (5) garras tarsais com 34 a 37 dentículos; (6) pequena brânquia torácica presente na base das coxas anteriores; (7) proesterno com uma protuberância mediana; (8) paraproctos com aproximadamente 22 pequenos espinhos marginais; e (9) filamento terminal aproximadamente do comprimento do décimo segmento abdominal.

**Palavras chave:** *Camelobaetidius*, nova espécie, Neotrópico, ninfas, Baetidae, Brasil

## Introduction

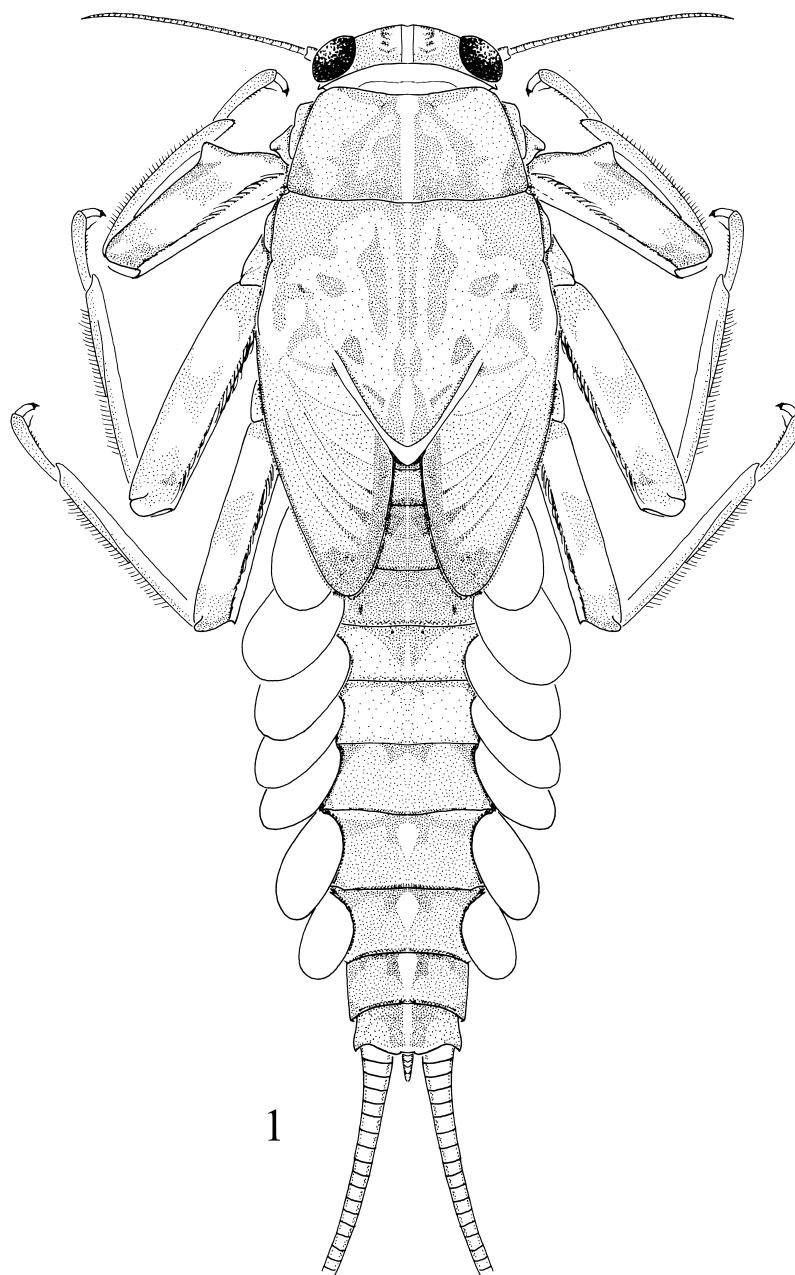
*Camelobaetidius* Demoulin is one of the most common and speciose genera of Baetidae (Ephemeroptera) in South America, with 24 species reported until now (Nieto 2002, 2003; Domínguez et al. 2005). Despite these facts, the knowledge regarding the genus in Brazil has historically been neglected. For many years, the only species of *Camelobaetidius* reported from Brazil were those described by Traver & Edmunds in one of the first paper dealing with the genus (Traver & Edmunds 1968). More recently, as a consequence of efforts in studying the Brazilian fauna of Baetidae, this situation is improving. Species are not only being recorded for the first time from the country (Salles & Dias 2004; Salles et al. 2004, in press), but several as yet undescribed species have been found.

In the present paper one of these new species is described. The description is based on nymphs from Rio de Janeiro and Alagoas states, Southeastern and Northeastern Brazil respectively. The material is housed in the following institutions: Departamento de Entomologia, Museu Nacional, Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil (MNRJ); Entomological Collection of the Departamento de Zoologia, Instituto de Biologia, Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil (DZRJ); Laboratório de Insetos Aquáticos, Departamento de Ciências Naturais, Escola de Ciências Biológicas, Universidade Federal do Estado do Rio de Janeiro, Rio de Janeiro, Brazil (LAQU); Instituto-Fundación Miguel Lillo, Tucumán, Argentina (IFML).

### *Camelobaetidius francischettii* Salles, Andrade & Da-Silva, sp. n.

Nymph. Body length: 5.3-6.2 mm. Caudal filaments length: 4.8-6.1 mm.

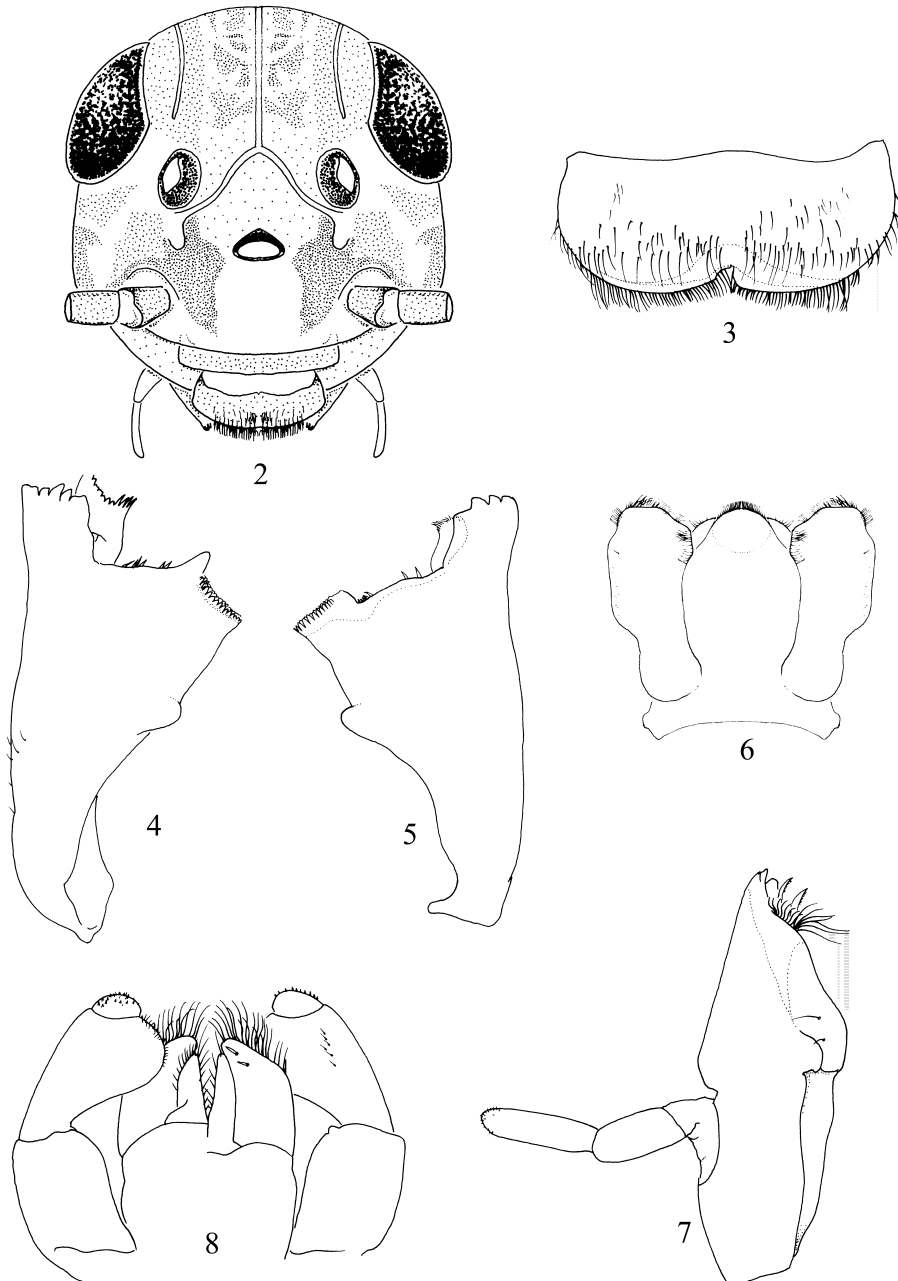
Head (Figs. 1, 2). General coloration brown, vertex with irregular yellowish marks, frons marked with white as in Fig. 2; turbinate portion of male compound eyes dark reddish brown. Antennae brownish-translucent. Labrum (Fig. 3) anterodorsally with several long, fine, simple setae, and with few short, fine, simple setae, scattered over surface; 2.5x wider than long. Left mandible (Fig. 4) with incisors with five denticles; prosthema robust, apically denticulate; minute, acute setae, between prosthema and subtriangular process. Right mandible (Fig. 5) with incisors with five to six denticles; prosthema robust, narrower than left prosthema; minute, acute setae, between prosthema and mola. Hypopharynx as in Fig. 6. Maxillae (Fig. 7) with 1+1 fine, simple, setae; palp segment one cylindrical. Labium (Fig. 8) with glossae with 12 fine, simple setae medially, and eight to ten fine, simple setae distally; paraglossae longer than glossae, apically with two rows of long, apically pectinate setae, dorsally with two robust, simple setae; segment 2 of labial palp with distomedial process rounded and strongly produced, inner margin with fine, simple setae, eventually with two acute setae, and dorsally with six long, fine, simple setae; segment three scattered with few acute setae over surface.



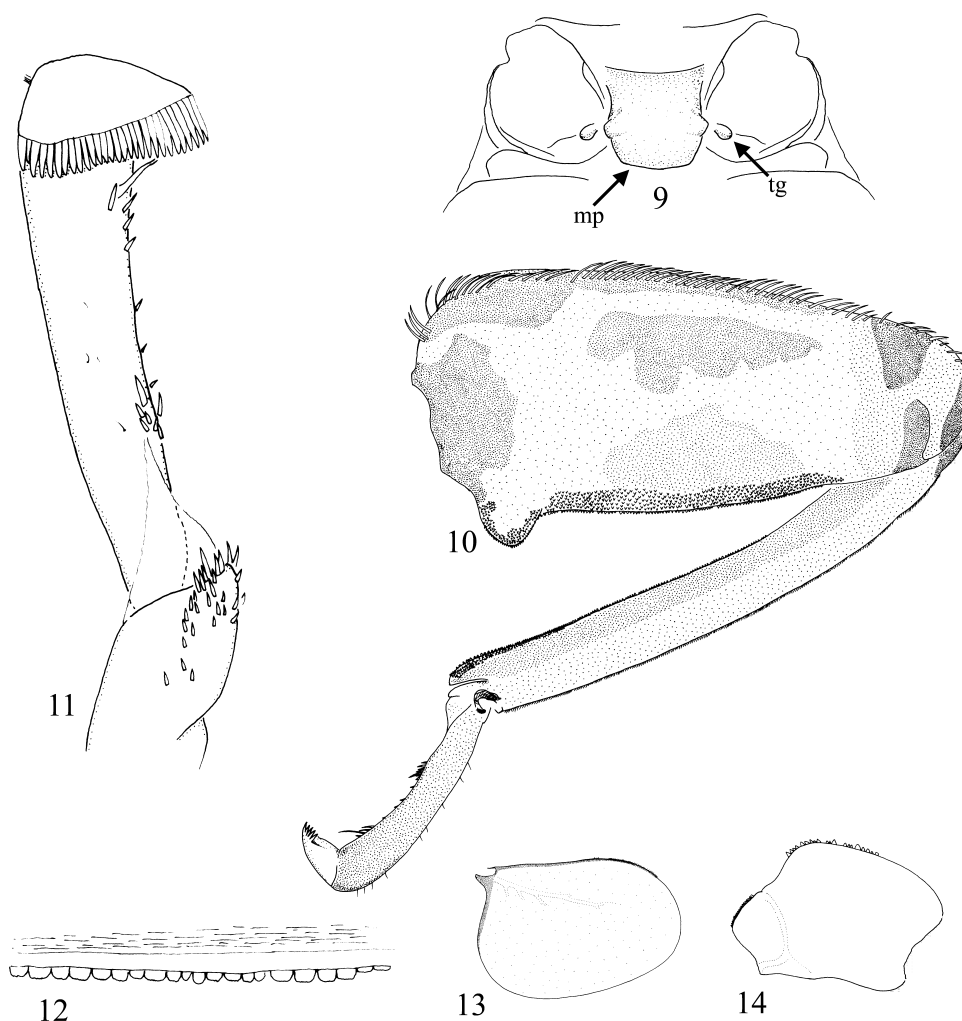
**FIGURE 1.** *Camelobaetidius francischettii*, sp. n.. General habitus of nymph.

Thorax. Pro and mesonotum light brown, with brownish marks as in Fig. 1. Metanotum brown. Pleurae and sterna yellowish-white. Legs (Figs. 1, 10, 11) with ventral margin of fore femora presenting prominent protuberance near base and entirely scattered with spines, dorsal margin with row of long, robust, simple setae; femora light brown, with brownish marks as in Fig. 10; fore tibia with ventral margin entirely scattered with spines, with indentation at apex, and abundant, fine, simple setae on dorsal margin; mid and hind

tibiae with ventral margin scattered with few short, acute, simple setae; tibiae brown ventrally and light brown dorsally; ventral margin of tarsi with row of 12 to 13 apically pointed, simple setae, and one long, fine, simple seta; tarsal claws with 34 to 37 denticles (Fig. 11); small thoracic gill present at base of fore leg (Fig. 9). Prosternum with single, medial protuberance (Fig. 9).



**FIGURES 2–8.** *Camelobaetidius francischettii*, sp. n., nymph. 2. Head (frontal). 3. Labrum (dorsal). 4. Left mandible. 5. Right mandible. 6. Hypopharynx. 7. Maxilla. 8. Labium (left-ventral; right-dorsal).



**FIGURES 9–14.** *Camelobaetidium francischettii*, sp. n., nymph. 9. Thorax (ventral view of prosternum, setae indicating: mp, medial protuberance; tg, thoracic gill). 10. Foreleg. 11. Mid leg (detail of tarsi and tarsal claw). 12. Tergum 4 (detail of posterior margin). 13. Gill 4. 14. Paraproct.

Abdomen. General coloration brown, with light brown marks as in Fig. 1. Posterior margin of terga as in Fig. 12. Sterna whitish-brown. Gills (Fig. 13) whitish, with main trachea unpigmented, margins light brown. Paraprocts (Fig. 14) with ca. 22 marginal small spines. Terminal filament approximately the length of the 10<sup>th</sup> segment (Fig. 1). Cerci light brown.

Adults. Unknown.

Type material. Holotype: female nymph, Alagoas, Murici, waterfall at the Fazenda Pedra Branca, 09°11,114'S, 35°55,627'W, 16/iii/2004, C.N. Francischetti leg (MNRJ).

Paratypes: two nymphs, same data as holotype (DZRJ); two nymphs, same data as holotype (IFML).

Additional non-type material. 2 nymphs, Rio de Janeiro, Pirai, Reservatório de Ribeirão das Lajes, Cachoeira Maria Ferreira, BIOÁQUA leg (LAQU). 6 nymphs, same data, except Cachoeira do Sertão (LAQU).

Etymology. We are pleased to name this species after our friend and colleague, Cesar Nascimento Francischetti, collector of the type-material and several other mayflies studied by us.

Distribution: Alagoas, Murici, and Rio de Janeiro, Pirai.

## Discussion

*Camelobaetidius francischettii* sp. n. can be distinguished from the other described species of the genus by the following combination of characters: (1) segment 2 of labial palp with distomedial process rounded and strongly produced (Fig. 8); (2) fore femora with prominent protuberance (Figs. 1, 10); (3) fore tibia with indentation at apex (Fig. 10); (4) ventral margin of fore femur and fore tibia entirely scattered with spines (Fig. 10); (5) tarsal claws with 34 to 37 denticles (Fig. 11); (6) small thoracic gill at the base of fore coxae (Fig. 9); (7) prosternum with a single, medial protuberance (Fig. 9); (8) paraprocts with ca. 22 marginal small spines (Fig. 14); and (9) terminal filament about as long as the length of the 10<sup>th</sup> abdominal segment (Fig. 1).

Among the species of *Camelobaetidius* with the terminal filament reduced, *C. francischettii* sp. n. appears to be most closely related to three other species: *C. mantis* Traver & Edmunds, from Brazil (Traver & Edmunds 1968), *C. leentvaari* Demoulin, from Suriname and Brazil (Demoulin 1966; Salles et al. in press), and *C. ipaye* Nieto, from Argentina (Nieto 2003). Both species present the fore femora with a prominent protuberance and the fore tibia with an indentation at apex. Among these species, *C. francischettii* sp. n. shares several other characteristics with *C. leentvaari*, as the presence of a medial protuberance on the prosternum, and the fore coxae with a small thoracic gill (Salles et al. in press). While in *C. ipaye* these characteristics are absent, it is more difficult to affirm at this time if they are really absent in *C. mantis*. In fact, because of the simplicity of the original description of this species, based on one immature nymph from Brazil (Traver & Edmunds 1968), the relationship of *C. mantis* with other species of the genus, or even its correct identification, will only be possible with a redescription based on the type material.

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1027