Technical Report/Relatório Técnico

First occurrence of the human biting midge *Leptoconops brasiliensis* (Lutz) (Diptera: Ceratopogonidae) in the triple border of Brazil, Peru, and Bolivia

Primeira ocorrência do maruin *Leptoconops brasiliensis* (Lutz) (Diptera: Ceratopogonidae) na tríplice fronteira do Brasil, Peru e Bolívia

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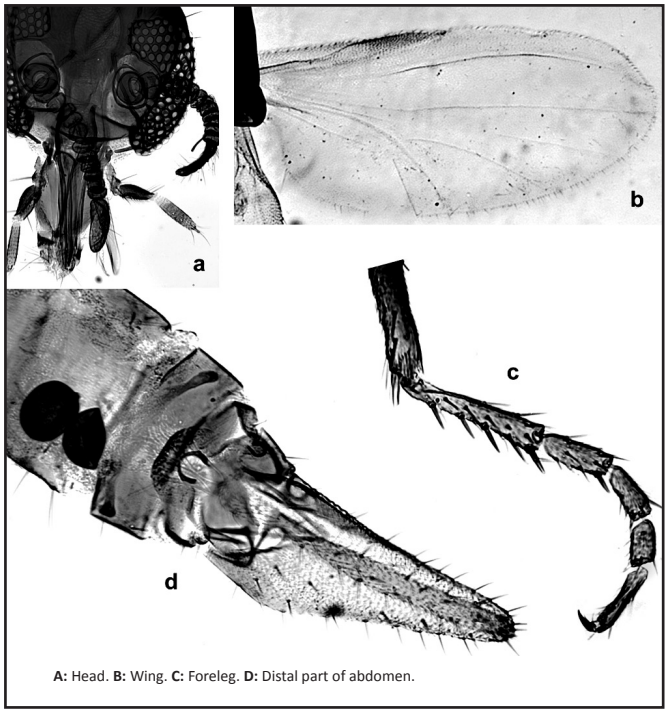
The Ceratopotogonidae are a large and diverse family of small diptera known as biting midges. There are about 102 living genera in the world[1] and 50 genera are found in the neotropical region[2]. Although there is high diversity, only four genera suck blood from vertebrates, namely, *Culicoides* Latreille, *Forcypomyia* Meigen, *Autroconops* Wirth & Lee, and *Leptoconops* Skuse. The genus *Leptoconops* is a diurnally biting species found in various parts of the world. The immediate effects of a bite are considered less severe than the subsequent lesions that can result[3]. These lesions were described pathologically by Steffen[4], who examined patients following a particularly severe infestation of *L. torrens* (Townsend) at Palm Springs, California. He noted indurated papules, which could remain intensely itching for months. Aussel[5] claimed that the bite from *L. albiventris* de Meijere in the French Polynesia often became infected, resulting in general edema and lymphadenopathy. As a result of their larval habitats on beaches, a number of tropical species of *Leptoconops* have been mentioned as a significant problem for the tourist industry in the Caribbean[6]. Lowri al.[7] successfully infected *Leptoconops bequaerti* (Kieffer) with the filarial worm *Mansonella ozzardi* (Manson) in Haiti.

There are until now 12 species of this genus, distributed in four subgenera, in the neotropical region. Biting midges were collected during a medical entomological survey in Assis, Brazil, a municipality located in the State of Acre, Brazil bordering Iñapari, Madre de Dios Department, Peru and San Pedro Bolpebra, Pando department, Bolivia, and limited by the Acre and Yaverija River. Man landing collections were measured both in the margins of these rivers near the location 10°56'42.04"S and 69°34'19.81"O. The midges were slide mounted and identified by entomological keys[2,8].

A total of 62 females were caught and only *L. brasiliensis* (Lutz) were found in September 2008 and August 2009, during the dry period. They presented with eyes widely separated; lacking a frontal suture; palpus with four segments with a third palpal segment sub-equal to the fourth, which bears a pale basal ring (**Figure 1A**); apical flagellomere about four times longer than broad, with conical shape (**Figure 1A**); longitudinal veins abutting the margin of the wing which is whitish hyaline without macrotrichia; crossvein r-m absent and radial cells fused into swollen stigma (**Figure 1B**); costal ratio near 0.5. The foreleg has a moderately strong spine, with strong ventral spines on tarsomere 1 of the foreleg and at apices of the distal tarsomeres (**Figure 1C**). The abdomen presents two spermatecae and very elongated cerci (**Figure 1D**).

According to Borkent & Spinelli[9], in Brazil there are two species: *L.* (*Holoconops*) *knowtoni* Clastrier & Wirth registered to State of Santa Catarina and *L.* (*Leptoconops*) *brasiliensis* registered to the State of Amazonas. Studies about biting midges in Brazil are still very scarce and probably must be found in other States of the Amazon region. Trindade & Gorayeb[10] made a correction of the distribution of *L. brasiliensis*, due to the type locality (Lower Tocantins River) of *L. brasiliensis* which is not in the State of Amazonas but in the State of Pará; also they collected this species in the coast of Pará. This species also occur in Argentina and Uruguay. The occurrence of this species is probably widespread in South America and the medical importance of *L. brasiliensis* in Brazil, besides the effects of the bites, is still unknown and should be studied further.



A: Head. **B:** Wing. **C:** Foreleg. **D:** Distal part of abdomen.

FIGURE 1 - *Leptoconops brasiliensis* female.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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