



## Review of the genus *Onconeura* Andersen *et* Sæther (Diptera: Chironomidae), with the description of four new species from Brazil

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### Abstract

Four new species of *Onconeura* Andersen *et* Sæther are described from Brazil, *O. japi*, *O. oncovolsella* and *O. similispina* as male, female, pupa and larva, and *O. cascatinha* as male and pupa. Additionally four pupal morphotypes are included. One new described species has associated COI DNA barcoding gene. The material studied was collected in the States of Mato Grosso, Minas Gerais, Rio de Janeiro, São Paulo and Rio Grande do Sul. Keys to the known species are given for all life stages.

**Key words:** Chironomidae, Orthoclaadiinae, *Onconeura*, new species, Brazil, DNA barcoding

### Introduction

The genus *Onconeura* was erected by Andersen and Sæther (2005) for the species *O. undecimata* Andersen *et* Sæther, 2005 and *O. semifimbriata* (Sæther, 1981). *O. undecimata* was described based on imagines and pupa from Chile. *O. semifimbriata*, originally described in the genus *Thienemanniella* Kieffer, 1911, was based on imagines and immatures from the Caribbean. The third named species of the genus, *O. desertica* (Paggi, 1985) from Argentina, was also described in *Thienemanniella* and later placed in *Onconeura* (Paggi 2007).

The genus was thought to be Neotropical, but its biogeographical distribution has been recently extended to the Nearctic region based on records of larvae from New Mexico and Arizona, USA (Krestian *et al.* in press.).

*Onconeura* seems to be widespread since it has been reported in several studies from Brazil as *Thienemanniella* sp 3 (Trivinho-Strixino & Strixino 1995, Kleine & Trivinho-Strixino 2005) and as *Onconeura* (*i.e.* Callisto & Goulart 2005, Anjos 2007, Couceiro *et al.* 2007, Stephan 2007). The aim of the present paper is to increase the taxonomic knowledge of the genus in Brazil with the description of four new species and three pupal morphotypes. Keys to all known species are also provided.

Several species of *Onconeura* seem to be morphologically similar to each other and are extremely difficult to separate if only one life stage is available. DNA barcoding has proved to be an effective molecular identification system in many groups of animals, including aquatic insects (*e.g.* Ball *et al.* 2005; Carew *et al.* 2007, Rivera & Currie 2009), very useful to associate different life stages (Blaxter 2004) and also recognize cryptic species (Hebert *et al.* 2004). For these purposes, a barcode library is indispensable for the identification of species. Herein, we supply as first step partial COI sequences for some *Onconeura* species.