



Cytotaxonomy of the crickets *Endecous* Saussure, 1878 with an overview of the chromosomes of Phalangopsinae Group (Orthoptera: Phalangopsinae)

EDISON ZEFA^{1,4}, CARMEM SILVIA FONTANETTI² & LUCIANO DE PINHO MARTINS³

¹Departamento de Zoologia e Genética, Instituto de Biologia, Universidade Federal de Pelotas (UFPEL), 96010-900 Capão do Leão, Rio Grande do Sul, Brazil. E-mail: edzeffa@gmail.com

²Departamento de Biologia, Instituto de Biociências, São Paulo State University-UNESP. 13506-900 Rio Claro, São Paulo, Brazil. E-mail: fontanet@rc.unesp.br

³Coordenação de Pesquisa em Entomologia, Instituto de Pesquisa da Amazônica (INPA), 69060-001, Manaus, Amazonas, Brazil. E-mail: lucianodpm@gmail.com

⁴Corresponding author

Abstract

The karyotypes of five species of crickets Phalangopsinae were studied: *E. onthophagus* shows $2n = 19$, $X0♂$, pairs 1, 7 and 8 metacentric, 2, 3, 6 and 9 submetacentric, 4 and 5 acrocentric; *E. itatibensis* with $2n = 19$, $X0♂$, pairs 1, 7 and 8 metacentric, 2, 3, 4, 6 and 9 submetacentric, pair 5 acrocentric; *E. cavernicolus* with $2n = 21$, $X0♂$, pairs 7, 8 and 9 metacentric, pairs 1, 2, 3, 4, 5, 6 and 10 acrocentric; *E. betariensis* with $2n = 21$, $X0♂$, pairs 2, 4, 8, 9, and 10 submetacentric, 1, 3, 5, 6 and 7 acrocentric; *E. alejomesai* with $2n = 21$, $X0♂$, pair 7 metacentric, 1, 2 and 8 submetacentric and 3, 4, 5, 6, 9 and 10 acrocentric. The mechanism of sex determination was $X0♂$, $XX♀$, with X chromosome metacentric as the largest of the set. We compared and discussed the karyotypes of the species of *Endecous* with an overview of the chromosomes of Phalangopsinae Group.

Key words: Cytogenetics, Karyotype, Ensifera, Grylloidea, Luzarinae

Introduction

The Grylloidea includes about 4500 described species (Eades & Otte, 2009) and the Phalangopsinae is one of the most important taxons in the Neotropical region (Desutter-Grandcolas, 1995a).

The Phalangopsinae Group includes the subfamilies Cachoplistinae, Luzarinae, Paragryllinae, Phalangopsinae, Phaloriinae and Rumeinae (Eades & Otte, 2009). The knowledge of karyotypes focuses on Luzarinae, with 21 of the 23 studied species and the chromosome number ranging from $2n = 11$ to $2n = 21$. The basic sex determination system is XO, occurring neo-XY in *Aracamby* (sooretama)¹ (Mello, 1994) and X_1X_2Y in *Seychellesia* Hewitt (1979).

An extensive chromosomal description was published by Mello (1992, 1994), including 11 species of *Aracamby* with karyotypes ranging from $2n = 11$ to 17. Mesa & Melo (1985) and Mesa *et al.* (1998) shown the chromosomes of three species of *Eidmanacris* and two of *Strinatia*, respectively. In *Adelosgryllus rubricephalus*, Mesa and Zefa (2004) found chromosome variation in two allopatric populations.

The genus *Endecous* includes 12 described species, seven occurring in the Brazilian territory, and two with information about chromosomes: *E. onthophagus* (Berg, 1891), with $2n = 19$, X0 (Cardoso *et al.* 1984, Mesa & Garcia-Novo, 1997) and *E. cavernicolus* Costa Lima, 1940, with $2n = 19$, X0 (Piza, 1945).

The present investigation was carried out in order to compare the karyotype of five species of *Endecous*, four from the Brazilian territory and *E. onthophagus* from Uruguay. We also present an overview of the chromosomes of Phalangopsinae Group.

1. Specific name presented in the PhD thesis of Mello (1994), but not published.