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Catalog of the subgenus *Melanoconion* of *Culex* (Diptera: Culicidae) for South America

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Abstract

Species of *Culex* (*Melanoconion*) Theobald are recognized as vectors of arboviruses. The species of this subgenus pose a real taxonomic challenge. The current classification of the subgenus recognizes a total of 160 species divided in two major sections, Melanoconion and Spissipes; and several non-formal groupings within each section. We gathered bibliographic records of the subgenus in South America, with particular focus on the period of time after the publication of the Catalog by Pecor *et al.* (1992) until present time. This compilation included 139 species occurring in South American countries with all the relevant bibliographic sources, including the corresponding information for those medically important species.

Key words: *Culex*, *Melanoconion*, Spissipes Section, Melanoconion Section, taxonomy, South America

Introduction

Species of *Culex* subgenus *Melanoconion* Theobald represent a diverse group widely distributed in the Americas. There are 160 species considered within the subgenus and members of this group are known to occur in the southern part of North America, including United States and Mexico, Central America, some of the Caribbean islands such as Trinidad, Tobago, Jamaica, Martinique and Puerto Rico, among others; and in most of South American countries (Pecor *et al.* 1992). Despite its wide distribution, the subgenus *Melanoconion* shows greatest diversity in tropical areas, such as the Amazon region and other forested environments of northern and western South America. Although very common in wild areas, *Melanoconion* species have been also recorded in rural and anthropic areas of South America (Forattini *et al.* 1991, 1993c, 1994).

Plenty of field studies have documented the high abundance of *Melanoconion* species in forest and rural environments (Hutchings *et al.* 2005, 2010, 2013; Forattini *et al.* 1991, 1993a), however small portions of the actual surveys reach the species identification level. This fact is explained by the great taxonomic difficulty that this group of mosquitoes poses. When studying *Melanoconion*, the close similarities of female specimens prevent any accurate identification by examining morphological traits only. The most reliable taxonomic characters are found in the male genitalia, and such delicate structures demand specific protocols for slide preparation and well-trained taxonomists for the required dissections (Sallum & Forattini, 1996). Though a complex group of mosquitoes, *Melanoconion* is worth the effort as they represent a group of medically important species. Members of this subgenus are considered vectors of viruses included in the Venezuelan Equine Encephalitis complex (*Togaviridae*), and West Nile virus (*Flaviviridae*); moreover there are records of isolation of the Eastern Equine Encephalitis virus and other arboviruses (*Bunyaviridae* and *Flaviviridae*) from species of this subgenus.

A catalog of any insect taxon is a very useful source of information, the most recent catalog for the subgenus *Melanoconion* was published by Pecor *et al.* (1992), which is considered today as one of the primary sources of valid taxonomic information about the group. Some changes and descriptions of new species have been going on since Pecor *et al.* (1992) published their catalog. A recent group of publications have been important contributions

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