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Morphological description of the fourth instar larva: *Culicoides cataneii* and *Culicoides sahariensis* (Diptera: Ceratopogonidae)

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Abstract

This study was carried out of the region of Monastir in Central Tunisia, between July and August 2010. Larvae were collected using a floatation technique with magnesium sulfate in mud samples. The fourth instar larva of *Culicoides cataneii* Clastrier, 1957 and *Culicoides sahariensis* Callot, Kremer, Bailly-Choumara, 1970 are described, illustrated and drawn. Measurements of instars IV are also presented. This is the first record of *Culicoides cataneii* and *Culicoides sahariensis* (Diptera: Ceratopogonidae) to Tunisia.

Key words: *Culicoides*, fourth instar larva, Tunisia

Introduction

Culicoides biting midges are important vectors of a number of arboviruses causing disease in domesticated livestock (Nevill *et al.* 2007). The most economically significant diseases are bluetongue (BT) in sheep and African horse sickness (AHS) in equids (Mellor *et al.* 2000). Bluetongue, in particular, is endemic to all areas of the tropics and subtropics where competent vectors *Culicoides* occur (Nevill *et al.* 2007). The adults' females are potential vectors of etiological agents that can cause diseases in humans and animals or bite in such large numbers that they thereby cause economic damages (Ronderos *et al.* 2003b; Ronderos *et al.* 2004).

In Tunisia, large BT outbreaks of serotype 2 were reported from 1999 to 2002 (Hammami 2003). The first such outbreak occurred during autumn 1999 in the eastern part of the country along the coast (Monastir, Mahdia and Sfax). The overall morbidity and mortality rates were 8.35% and 5.5% respectively (Hammami 2003). In 2000, 72 outbreaks were reported between June and October affecting 6.120 sheep in the eastern and central parts of the country.

Larvae of the worldwide genus *Culicoides* Latreille are important components in the bioenergetic cycle within aquatic and semi aquatic systems (Alencar *et al.* 2001). The first morphological descriptions of larvae and pupae of *Culicoides* date from 1920 (Hill 1947). So far, no study on the morphological description of larval *Culicoides* has been made in Tunisia.

The purpose of this paper was to provide the first detailed description of larvae of *Culicoides cataneii* Clastrier, 1957 and *Culicoides sahariensis* Callot, Kremer, Bailly-Choumara, 1970, and to give details of larval biology, habitat and feeding behavior.