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A new quill mite *Syringophiloidus pseudonigritae* sp. nov. (Prostigmata, Syringophilidae) parasitizing *Pseudonigrita arnaudi* (Passeriformes, Ploceidae)—a combined description using morphology and DNA barcode data

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Abstract

A new quill mite species *Syringophiloidus pseudonigritae* sp. nov. is described using a combination of morphological data and COI sequence data. The mite was found parasitizing a Grey-headed Social-Weaver *Pseudonigrita arnaudi* (Bonaparte) (Passeriformes, Ploceidae), which was captured in Tanzania and died in a German aviary.

Key words: quill mites, *Syringophiloidus*, *Pseudonigrita arnaudi*, DNA barcoding, systematics

Introduction

Until recently, quill mites of the family Syringophilidae (Prostigmata, Cheyletoidea) were described with morphological characters only. This was dictated in part by the fact that many previous studies were carried out on mites collected from museum bird specimens; such material is frequently too degraded for molecular analysis. However, purely external morphology can be an insufficient source of information about this group of mites because the similar environmental conditions inside the quill probably expose them to similar selective pressure, which is expressed in a highly uniform body structure. Numerous homoplastic characters and often ambiguous differential morphological characters at fine taxonomic levels (Johnston & Kethley 1973) can hamper the systematic studies on this group, including both taxon descriptions and studies of host specificity.

The rapid development of molecular tools used in distinguishing animal species often overcomes the limitations of morphology. The DNA barcoding system, using mainly the nucleotide sequence of cytochrome oxidase subunit I (COI) (Hebert *et al.* 2003), is increasingly being applied by acarologists in many taxonomic investigations, e.g. descriptions of mite species (Badek *et al.* 2008; Dabert *et al.* 2008; Skoracka 2009), and as a tool supporting the phenotypic approach and validating species status among populations of mites from different hosts (e.g., Lohse *et al.* 2002) or from various habitats (e.g., Martin *et al.* 2010).

Ploceid hosts, as yet, have been poorly investigated for syringophilid mites. Quill mites are recorded from only seven bird species of this family and at present are represented by four mite species from the genera *Krantziaulonastus* Skoracki, *Picobia* Haller, *Syringophilopsis* Kethley and *Syringophiloidus* Kethley. The latter genus includes 33 species associated with birds of three orders: Passeriformes (20 families), Apodiformes (1) and Piciformes (1) (Skoracki 2011; Bochkov *et al.* 2011).

The extended description of quill mites, including both morphology and DNA barcode data, was applied for the first time by Glowska *et al.* (2012) for the depiction of *Picobia dziabaszewskii* Glowska, Dragun-Damian & Dabert. In this paper we present the following combined description (morphology and DNA barcode data) of a syringophilid mite species *Syringophiloidus pseudonigritae* sp. nov. parasitizing the Grey-headed Social-Weaver *Pseudonigrita arnaudi* (Bonaparte) (Passeriformes: Ploceidae).