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A new species group and species of the genus *Pavania* (Acari: Dolichocybidae), phoretic on *Onthophagus vitulus* (Coleoptera: Scarabaeidae) from Iran

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Abstract

Pavania setiformis Loghmani & Hajiqanbar **sp. nov.** (Acari: Heterostigmatina: Dolichocybidae) associated with *Onthophagus* (*Palaeonthophagus*) *vitulus* (Fabricius) (Coleoptera: Scarabaeidae) is described from northeastern Iran. This remarkable new species represents a new *setiformis* species group characterized by seta-like sc_1 , instead of capitate trichobothria. The genus *Pavania* is thus divided into three species groups: the *fusiformis* group (15 species), the *gymnopleuri* group (3 species) and the *setiformis* group (1 species). We also found *P. sabzevarensis* Hajiqanbar & Khaustov, 2010 and *P. onthophagi* Hajiqanbar & Khaustov, 2010 phoretic on *Gymnopleurus mopsus* (Pallas) and *Onthophagus* (*Euonthophagus*) *amyntas alces* (Fabricius), respectively.

Key words: Heterostigmatina, Dolichocybidae, *Pavania setiformis* **sp. nov.**, phoresy, trichobothria, pharynx

Introduction

Association with arthropods, mostly insects, is characteristic for heterostigmatic mites (Acari: Trombidiformes: Heterostigmatina) (Kaliszewski *et al.* 1995). One of the early derivative families of the Heterostigmatina is Dolichocybidae comprising fungivorous mites, usually with phoretic relationships with insects. The family consists of two subfamilies, Dolichocybinae and Formicomotinae, the former including the genera *Pavania* and *Dolichocybe* (Rahiminejad *et al.* 2011). The genus *Pavania* currently includes 18 species usually found in soil and litter (Sevastianov & Abo-Korah 1985), and also as phoretic mites on coleopteran families Scarabaeidae and Carabidae (Cross 1965; Sevastianov 1980; Khaustov 2005; Hajiqanbar & Khaustov 2010). Hajiqanbar and Khaustov (2010) divided the genus *Pavania* into two species groups based on the presence or absence of capitate trichobothria (sc_1) on the prodorsum: the *fusiformis* group with trichobothria (15 species) and *gymnopleuri* group with no trichobothria (3 species). In this paper, we erect another species group, the *setiformis* group, characterized by seta-like sc_1 .

Material and methods

Mites were removed from scarabaeid beetles collected directly from their habitat, excrement of yellow ground squirrels *Spermophilus fulvus* (Lichtenstein) (Mammalia: Rodentia: Sciuridae). Mite specimens were cleared in lactophenol solution and mounted in Hoyer's medium. Terminology follows mostly from Lindquist (1986) and in part (chaetotaxy of tarsus I) from Rahiminejad *et al.* (2011). The morphology of the mites was studied by a light microscope with phase contrast (model BX51, Olympus, Tokyo, Japan). All measurements in the description are given in micrometers for the holotype and five paratypes in parentheses. In descriptions of the leg setation the number of solenidia is given in parenthesis. The scarabaeid host beetles were identified by G. V. Nikolaev (Al-Farabi Kazakh National University, Almaty, Kazakhstan). The holotype is deposited in the Acarological