



New species and new records of mites of the family Laelapidae (Acari: Mesostigmata) associated with ants in Iran

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Abstract

This paper reports on four species of mites of the family Laelapidae associated with ants in Iran—*Gymnolaelaps messor* **sp. nov.** from *Messor* sp., *Gymnolaelaps prestoni* **sp. nov.** from *Myrmica* sp., *Myrmozercon karajensis* **sp. nov.** from *Camponotus* sp., and *Pseudoparasitus missouriensis* (Ewing, 1909) from *Camponotus* sp. This is the first record of *Myrmozercon* from Iran. The genera *Gymnolaelaps* and *Pseudoparasitus* are distinguished from each other and from the related genus *Laelaspis* by the shape, ornamentation and chaetotaxy of the genital shield, the form of the palp tarsal claw, and the presence or absence of pre-sternal plates.

Key words: Laelapidae, *Gymnolaelaps*, *Laelaspis*, *Pseudoparasitus*, *Myrmozercon*, ants, Iran

Introduction

The mite family Laelapidae is ecologically diverse, including obligate and facultative parasites of vertebrates, insect paraphages, and free-living predators that inhabit soil-litter habitats and the nests of vertebrates and arthropods (Evans & Till, 1966; Strong & Halliday, 1994; Lindquist *et al.*, 2009). The classification of this family is complicated and confusing. Many authors have commented that the differences between subfamilies and genera are not clearly defined, and different authors have used different concepts for genera and subgenera. This is especially true of the free-living and insect-associated genera related to *Hypoaspis* Canestrini, 1884. The existing classification of these taxa has been developed mainly using the European fauna, but a stable classification will not be possible until more taxa are described from other parts of the world, and from a wider range of host associations.

Many species Laelapidae have been reported from ants or their nests. For example, Gwiazdowicz (2008) listed 22 species of Laelapidae from ants' nests in Poland, most of them in the genus *Hypoaspis*. However, we believe that none of those species belongs in *Hypoaspis sens. strict.*, but are better placed in other genera including *Gaeolaelaps* Evans & Till, 1966, *Cosmolaelaps* Berlese, 1903, and *Gymnolaelaps* Berlese, 1916.

The fauna of Laelapidae in Iran is very poorly known. Faraji *et al.* (2008) published a key to 21 Iranian species of *Hypoaspis sensu lato*, but commented that the identification of some of these species remains unconfirmed. The present paper continues a project which has the objective of increasing the knowledge of this poorly studied regional fauna of Laelapidae, based on extensive recent collections of free-living and insect-associated species. We have already described a collection of species associated with Coleoptera (Joharchi & Halliday, 2011), and we now expand the study to include four genera associated with ants.

Material and methods

Laelapidae associated with ants were collected mainly in Tehran Province over a period of three years. Mites were removed from ants' nests by individual hand picking and by extraction from ant nesting material using Tullgren