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A new species of *Laelaspis* Berlese (Acari: Mesostigmata: Laelapidae) from Iran, with a revised generic concept and notes on significant morphological attributes in the genus

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Abstract

A short diagnosis and a more detailed diagnosis of the genus *Laelaspis* are presented. Until now, a total of 40 described species belong to the genus, including a new species described here, and excluding the four following species previously described as *Laelaspis* or *Hypoaspis* (*Laelaspis*): *L. badrii* Nasr & Nawar [considered as *Cosmolaelaps badrii* **comb. nov.**], *L. zuluensis* Trägårdh, *Hypoaspis* (*L.*) *lawrencei* Van Aswegen & Loots, and *Hypoaspis* (*L.*) *latodentis* Karg. In addition, *L. morazae* **sp. nov.**, is described on the basis of adult female and male specimens associated with *Lepisiota semenovi* (Ruzsky) (Formicidae) in Mashad County, northeastern Iran, and in the nest of an unknown ant in Shahreza County, central Iran. *Laelaspis persicus* is redescribed based on the holotype, paratype and additional specimens collected in north, southeastern and southwestern Iran.

Key words: Dermanysoidea, Hypoaspidae, myrmecophilous mites, redescription

Introduction

The family Laelapidae includes a large number of genera and species that exhibit a high morphological and ecological diversity. However, the boundaries of several groups of the family, including subfamilies and genera, are not clear. The genus *Laelaspis* was originally erected by Berlese (1903) as a subgenus of *Laelaps* Koch, raised to genus level by the same author (Berlese 1920, 1924), and that decision was followed by several subsequent authors (e.g. Hunter, 1961, 1964b; Hunter & Davis, 1962; Allred, 1969; Shereef & Afifi, 1980; Bai & Gu, 1993; Joharchi *et al.*, 2011, 2012a, b; Babaeian *et al.*, 2013; Ramroodi *et al.*, 2014, 2015). Vitzthum (1943) considered *Laelaspis* as a subgenus of *Hypoaspis* Canestrini, 1885 *s. lat.*, and this classification was followed by several others (e.g. Evans & Till, 1966; Hunter & Clover, 1968; Van Aswegen & Loots, 1970; Lapina, 1976; Bregetova, 1977; Karg, 1979, 1982, 1989, 1993a, b, 2000).

Berlese's (1903) original description of *Laelaspis* was poor, referring to the large "ventral shield" reaching the anal shield, which is indeed characteristic of all *Laelaspis* species. He presented a more detailed diagnosis for the genus in 1904, including also the shape of the genitiventral shield, characterised by a specific ornamentation, including two Λ -shaped subparallel lines. Hunter (1961) reviewed the genus concept and listed nearly all the species previously described. He also described three new species and transferred *Gymnolaelaps vitzthumi* Willmann, 1956 to *Laelaspis*. Evans & Till (1966, 1979), Bregetova (1977) and Joharchi *et al.* (2011)'s clarifications on the boundaries of the genus are useful, although a more detailed diagnosis for the genus is still required.

The genus *Laelaspis* currently includes 40 described species of usually myrmecophilous mites, but some species occur in other habitats such as soil and litter, moss, or are associated with beetles, small mammals or their nests (Berlese, 1903, 1904, 1920, 1924; Evans & Till, 1966; Lapina, 1976; Hunter, 1961, 1964b; Hunter & Davis, 1962; Hunter & Glover, 1968; Joharchi *et al.*, 2012a). The few studies on the biology of these mites suggest that they are not harmful to their hosts, and indicate that at least some species feed on small invertebrates such as nematodes and acarid mites (Hunter, 1964a; Rasmy *et al.*, 1987).