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Redefinition of the genus *Silphitrombium* (Trombidiformes: Neothrombiidae) with description of two new species parasitizing beetles (Coleoptera: Elateridae, Tenebrionidae) from Iran

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Abstract

Two new species of *Silphitrombium* Fain, 1992 (Acari: Prostigmata: Neothrombiidae), ectoparasites of beetles (Insecta: Coleoptera), are described from Sistan and Baluchestan Province, eastern Iran: *S. elateridum* sp. nov. on *Heteroderes heideni* Reitter, 1891 (Col.: Elateridae) and *S. iranicum* sp. nov. on *Opatroides punctulatus* Brullé, 1832 (Col.: Tenebrionidae) and the genus *Silphitrombium* is redefined. It is the first record of the relationship between beetles of the families Elateridae and Tenebrionidae, and mites of the genus *Silphitrombium*. A key to the species of the genus is presented.

Key words: mite, insect, ectoparasite, Prostigmata, Parasitengona

Introduction

The superfamily Trombidioidea (Acari: Prostigmata: Parasitengona) is a diverse group including four families (Zhang *et al.* 2011). One of the families is Neothrombiidae, a small but widespread family including about 28 species in 17 genera (Mağol & Wolhlmann 2012, 2013). Deutonymphs and adults occur in various edaphic habitats, and the larvae of most species are parasites on insects, especially Orthoptera. There are examples of parasitic associations between larvae of this family and other host groups comprising: *Neosilphitrombium tenebrionidum* Saboori, Hajiqanbar and Hakimitabar, 2011 on tenebrionids; *Opiliotrombium akatarawa* Zhang & Fan, 2005 on Opiliones; *Silphitrombium furculigerum* Fain, 1992, *Neosilphitrombium gratum* Fain, 1992 and *Vagatotrombium lissae* Haitlinger, 2001 on silphid beetles, and *Paputrombidium grootaerti* Fain, 1992 on Diptera; *Machilitrombium cokendolpheri* Fain, 1994 on a bristle-tail *Mesomachilus nearcticus* Silvestri, 1911 (Microcoryphia: Machilidae); *Thaitrombidium ephydricola* Fain, 1998 and *T. satunense* Fain, 1998, both from *Hecamedoides granifera* Thomson (Ephydriidae) and *Wondeclia centipedae* Southcott, 1987 on the centipede *Rhysida nuda* (Newport) (Scolopendridae) (Southcott, 1987; Fain 1992a, b, 1994, 1998; Haitlinger 2001; Zhang & Fan 2005; Saboori *et al.* 2011). To date, one species of the genus *Silphitrombium* has been described: *S. furculigerum* as an ectoparasite of an undetermined carrion beetle (Coleoptera: Silphidae) from Belgium (Fain 1992a).

During sampling for prostigmatic mites associated with insects in some areas of Iran, we found two new larval species of the genus *Silphitrombium* on two beetle hosts belonging to the families Tenebrionidae and Elateridae. In this paper, we redefine the genus *Silphitrombium* and describe these two new species.

Material and methods

The mites were attached beneath the elytra of tenebrionid and elaterid beetles. They were detached with an entomological pin and preserved in 75% ethanol, cleared in lactophenol and mounted using Hoyer's medium

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