



Redescription and neotype designation of *Lobogynium sudhiri* (Datta) (Acari: Diplogyniidae), a mite associated with beetles of the genus *Atholus* (Thomson) (Coleoptera: Histeridae) in the Palaearctic region

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Abstract

Ophiocelaeno sudhiri Datta, 1985 (family Diplogyniidae) is transferred to the genus *Lobogynium* Trägårdh, 1950 and re-described from specimens collected in close association with histerid beetles of the genus *Atholus* (Thomson) in Europe and Asia. The genus *Lobogynium* is redefined and a key to the species is presented. The first description of the female, detailed redescription of the male and the new combination *Lobogynium sudhiri* (Datta, 1985) **comb. nov.** are given. A neotype is designated for this species, because the holotype is lost. A strongly sclerotised antero-lateral circum-anal area appears to be an autapomorphic feature of this species. *Lobogynium sudhiri* is widely distributed in the Palaearctic region, and is probably a sapro-coprophilous species that completes its life-cycle in dung and other decaying organic matter.

Key words: Diplogyniidae, *Ophiocelaeno*, *Lobogynium*, neotype, Histeridae, *Atholus*

Introduction

Diplogyniidae Trägårdh, 1941 is the largest family group in the supercohort Trigynaspida, and is widely distributed in the tropical and subtropical regions of the world. Females in this family may be recognised by the well developed latigynal shields, which touch each other along much of their medial margin, and are separated from the ventral shield along whole length of their posterior margin. They can be distinguished from the closely similar family Triplogyniidae Funk, 1977 by the fusion of the anal shield with the ventral shield (with the exception of the genus *Neodiplogynium* Trägårdh, 1950) (Kim, 2004; Krantz & Walter, 2009).

The adults of many species have been collected on passalid beetles, but several other groups of insects are also associated with these mites. Other species have been found on Diplopoda and Squamata, others are apparently free-living. Phoresy and paraphagy are believed to be the basis of most of these associations. Immature stages and their feeding habitats are unknown, although Trägårdh (1950) supposed that they inhabit the same microhabitats as their hosts. Seeman (2007, 2012) found that larvae and nymphs of *Cryptometasternum derricki* Womersley, 1958 live within tunnels made by passalid beetles and can be reared on a diet of nematodes.

During a study of the acarofauna living in dunghills from northern Italy, the senior author collected one female and five males of a diplogyniid mite that he identified as *Ophiocelaeno sudhiri* Datta, 1985, a species originally described from a single male specimen found in dung in India (Assam). The casual finding of a close association of this species with *Atholus bimaculatus* (L.), a subcosmopolitan histerid beetle, subsequently led to collection of several more specimens from other Italian localities, by capturing this host beetle and the related species *Atholus duodecimstriatus* (Schrank).

The identification of this mite was based on an unique combination of morphological features that was undescribed from other species of this family: antero-lateral circum-anal area strongly sclerotised, a glandular complex on the posterior end of each ventri-marginal shield, the distinctive chaetotaxy of the palp femur, and the position of the ventral setae in the opisthosomal region. However, the original description of the holotype of *O. sudhiri* appeared to differ from the Italian specimens in details of the holovertebral shield, and palpal and leg chaetotaxy.