



Differentiation of external morphology of Damaeidae (Acari: Oribatida) in light of the ontogeny of three species

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Abstract

Morphology of juvenile stages and ontogeny of *Damaeus onustus* C. L. Koch, 1844, *Damaeus clavipes* (Hermann, 1804) and *Kunstitadamaeus tecticola* (Michael, 1888) was investigated. The juveniles of these species differ mainly in body shape and size, and shape of some setae on the gastronotum and legs. The nymphs of all species lose centrodorsal setae of the *d*-series, and carry the exuviae of previous instars, but *D. onustus* carries also compact humus mass adhering to exuviae, *D. clavipes* a lot of loose debris, while *K. tecticola* usually only exuviae. The kind of camouflage is partly determined by the shape of gastronotal setae; in *D. onustus* these setae are curved ventrally, in *D. clavipes* are raised, while in *K. tecticola* are raised, and strongly curved medial. The nymphs of these species, as the nymphs of all other known Damaeidae, have gastronotal cornicle, which connects the exuviae of previous instars to the gastronotum. The cornicle of particular species differs in shape and location on the gastronotum; in some species is located anteromedial to setae *la*, in the other between setae *lm*, and in the other yet between setae *lp* or *h*₃. The adults of these species differ mainly in body size, presence and shape of cuticular apophyses on the body, length of some setae on the prodorsum and notogaster, and the number of setae on legs, including dorsal seta *d* on genua I–III and tibiae I–IV.

Key words: oribatid mites, juveniles, ontogeny, phylogeny, *Damaeus onustus*, *D. clavipes*, *Kunstitadamaeus tecticola*

Introduction

The oribatid mite family Damaeidae are relatively well distinguished, both as adults and juveniles, despite their high diversity—280 species in 31 genera (Norton & Behan-Pelletier 2009). The adults are from medium (about 0.5 µm) to large size (above 1.5 µm), and medium to dark brown colouration, with a well formed, subtriangular prodorsum, and highly arched, and nearly hemispherical notogaster, with legs that are either relatively long or short with beaded segments. The prodorsum is always well separated from notogaster by deep, sejugal furrow. In the anterior part of the prodorsum they have rather long, curved rostral and lamellar setae, and in the posterior part have well-