



New species of oribatid mites with auriculate pteromorphs (Acari, Oribatida, Galumnidae) from the Philippines

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Abstract

Three new species of oribatid mites of the family Galumnidae (Acari, Oribatida), *Galumna* (*Cosmogalumna*) *vladopesici* **sp. nov.**, *Carinogalumna philippinensis* **sp. nov.** and *Setogalumna luzonica* **sp. nov.**, are described from the Philippines. *Galumna* (*Cosmogalumna*) *vladopesici* **sp. nov.** is most similar morphologically to *G. (C.) dongnaiensis* Ermilov & Anichkin, 2013, but it differs from the latter by the surface of body, genital and anal plates, and by the number and size of notogastral porose areas. *Carinogalumna philippinensis* **sp. nov.** differs from all species of *Carinogalumna* by the number of notogastral porose areas and structure of lamellar and sublamellar lines. *Setogalumna luzonica* **sp. nov.** is most similar morphologically to *S. excellens* P. Balogh, 1985, but it differs from the latter by the body size, morphology of bothridial setae, anterior notogastral margin and notogastral porose areas *Aa*, and structure of lamellar and sublamellar lines. The genera *Galumna* and *Carinogalumna* are recorded for the first time in Philippines, and the genus *Setogalumna* in the Oriental region. Identification keys to known species of *Galumna* (*Cosmogalumna*) and *Setogalumna* are given.

Key words: Oribatida, fauna, Galumnidae, *Galumna* (*Cosmogalumna*), *Carinogalumna*, *Setogalumna*, key, Philippines

Introduction

The fauna of oribatid mites of the family Galumnidae (Acari, Oribatida) in the Philippines is poorly known. Prior to present study, only one species has been reported, *Galumna* (*Galumna*) *flabellifera* Hammer, 1958 (Corpuz-Raros 1979, 1992; Corpuz-Raros & Raros 1989; Corpuz-Raros & Gruèzo 2011), while many species remain unidentified.

In the course of taxonomic identification of Philippine galumnid oribatid mites from the collections of the second author (L. Corpuz-Raros) and colleagues from the Museum of Natural History, University of the Philippines Los Baños, we found new species of *Galumna* (*Cosmogalumna*) Aoki, 1988, *Carinogalumna* Engelbrecht, 1973 and *Setogalumna* P. Balogh, 1985. The main goal of our paper is to describe and illustrate these new species. The first two genera noted above are recorded for the first time in the Philippines, and the third (*Setogalumna*) is the first record for the whole Oriental region.

The subgenus *Galumna* (*Cosmogalumna*) was proposed by Aoki (1988) as an independent genus with *Cosmogalumna ornata* Aoki, 1988 as type species. Currently, it comprises six¹ species distributed in several countries: Japan, Vietnam, China (see summarized data in Subías 2004, updated 2014). Based on data from Aoki (1988) and our personal additions and corrections the subgeneric diagnosis of *Galumna* (*Cosmogalumna*) can be modified as follows: with characters of the genus *Galumna* (Ermilov *et al.* 2013); lamellar setae inserted usually

1. Subías (2004) also included the genus *Variogalumna* Mahunka, 1995 (with type species, *V. singularis* Mahunka, 1995 from Borneo) in *Galumna* (*Cosmogalumna*) on the basis of similarity of a reticulate pattern on the body. However, *V. singularis* is clearly different in having costula-like lamellar lines (versus simple, thin in *Galumna* (*Cosmogalumna*)). Hence, at this moment, we temporarily support the generic status of *Variogalumna* Mahunka, 1995, but additional research is necessary.

Epimeral and lateral podosomal regions (Fig. 20). Apodemes (1, 2, sejugal, 3) well visible. Four pairs of epimeral setae (*1b*, *3b*, *4a*, *4b*) present; all similar in length (28–32), thin, smooth. Pedotecta II rectangular, rounded anteriorly in ventral view. Discidia triangular. Circumpedal carinae directed laterally to the insertions of *4a*.

Anogenital region (Figs 20, 22). Six pairs of genital setae (g_1 – g_6 , 28–32), one pair of aggenital (28–32), two pairs of anal (28–36) and three pairs of adanal (28–36) setae thin, smooth. Anterior edge of genital plates with two setae. One specimen has three pairs of aggenital setae. Adanal lyrifissures located inverse apoanal. Adanal setae ad_3 inserted laterally to *iad*. Postanal porose area elongate trapezoid to triangular with rounded corners (57–61 × 36–41).

Legs. Morphology of leg segments, setae and solenidia generally typical for Galumnidae (for example, Engelbrecht 1969, 1972; Ermilov & Anichkin 2010; Ermilov *et al.* 2011). Formulae of leg setation and solenidia: I (1–4–3–4–20) [1–2–2], II (1–4–3–4–15) [1–1–2], III (1–2–1–3–15) [1–1–0], IV (1–2–2–3–12) [0–1–0]; homologies of setae and solenidia indicated in Table 1.

Material examined. Holotype (male) and five paratypes (two females, three males): Philippines, Luzon Island, Mount Makiling, Makiling Botanic Gardens, Los Baños, Laguna, in litter from plantation of narra (*Pterocarpus indicus*), 8.VI.1975, collected by J.M. Sotto & R.C. Garcia.

Type deposition. The holotype is deposited in the collection of the Zoological Institute of the Russian Academy of Sciences, St. Petersburg, Russia; three paratypes are deposited in the collection of the Tyumen State University Museum of Zoology, Tyumen, Russia, two paratypes are deposited in the Museum of Natural History, University of the Philippines Los Baños, College, Laguna, Philippines.

Etymology. The specific name “*luzonica*” refers to island origin, Luzon.

Remarks. In presence the lamellar and interlamellar setae, *Setogalumna luzonica* **sp. nov.** is similar to *S. excellens* P. Balogh, 1985 from Australia. However, it clearly differs from the latter by its larger body size (813–1045 × 697–830 versus 543–578 × 361–381 in *S. excellens*), lanceolate bothridial setae (versus clavate in *S. excellens*), absence of anterior notogastral margin (versus present in *S. excellens*), elongate, transversely oriented notogastral porose areas *Aa* (versus oval, longitudinally oriented in *S. excellens*) and lamellar and sublamellar lines divergent in distal part (versus parallel in *S. excellens*).

Key to known species of the genus *Setogalumna*

1. Anterior margin of notogaster developed; interlamellar setae extremely long; bothridial setae with head rounded distally; body size: 543–578 × 361–381 *S. excellens* P. Balogh, 1985. Distribution: Australia
- Anterior margin of notogaster not developed; interlamellar setae of medium size or absent; bothridial setae pointed distally (lanceolate or dilated unilaterally). 2
2. Interlamellar and lamellar setae represented by alveolus; bothridial setae dilated and ciliate unilaterally; notogastral porose areas *Aa* oval, longitudinally oriented; body size: 245 × 140 *S. diminuta* Arillo & Subías, 1993. Distribution: Spain
- Interlamellar and lamellar setae of medium size; bothridial setae with lanceolate and indistinctly barbed head; notogastral porose areas *Aa* elongate oval, transversely oriented; body size: 813–1045 × 697–830 *S. luzonica* **sp. nov.** Distribution: Philippines

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