Acarologia

A quarterly journal of acarology, since 1959
Publishing on all aspects of the Acari

All information:
http://www1.montpellier.inra.fr/CBGP/acarologia/
acarologia-contact@supagro.fr

Acarologia is proudly non-profit,
with no page charges and free open access

Please help us maintain this system by
encouraging your institutes to subscribe to the print version of the journal
and by sending us your high quality research on the Acari.

Subscriptions: Year 2021 (Volume 61): 450 €
http://www1.montpellier.inra.fr/CBGP/acarologia/subscribe.php
Previous volumes (2010-2020): 250 € / year (4 issues)
Acarologia, CBGP, CS 30016, 34988 MONTFERRIER-sur-LEZ Cedex, France
ISSN 0044-586X (print), ISSN 2107-7207 (electronic)

The digitalization of Acarologia papers prior to 2000 was supported by Agropolis Fondation under
the reference ID 1500-024 through the « Investissements d’avenir » programme
(Labex Agro: ANR-10-LABX-0001-01)

Acarologia is under free license and distributed under the terms of the
Creative Commons-BY-NC-ND which permits unrestricted non-commercial use, distribution, and
reproduction in any medium, provided the original author and source are credited.
A NEW SPECIES, **SPHAEROCHTHONIUS SPECTABILIS** SP. N., OF **SPHAEROCHTHONIIDAE** (ACARINA, ORIBATIDA) FROM A TERMITE NEST (**ANACANTHOTERMES AHNGERIANUS** JUC.) IN THE SOUTHWESTERN TURKMENISTAN DESERT

by E. GORDEEVA¹, R. NIEMI² and A. D. PETROVA-NIKITINA³

**ABSTRACT:** A new oribatid species, *Sphaerochthonius spectabilis* sp. n., is described from nests of the termite *Anacanthotermes ahngerianus* Juc., in the southwestern Turkmenistan desert.

**Résumé :** Une espèce nouvelle d’Oribate, *Sphaerochthonius spectabilis* sp. n., vivant dans des termitières d’*Anacanthotermes ahngerianus* Juc. du désert sud-ouest du Turkmenistan, est décrite.

In a previous study by PETROVA-NIKITINA (1987) on the commensal mite fauna from nests of termites (*Anacanthotermes ahngerianus*) in southwestern Turkmenistan, it was observed that over sixty species of mites inhabit the underground nests of these termites, represented mainly by free-living soil species. It turned out that the composition of the mite fauna is unique, in terms of both the species present and the range of the dominant species. Forty-five percent of the total number of species was composed of primitive mites and about seventy-five percent of the total number of specimens consisted of archaic oribatids and primitive gamasids. The primitive families of the oribatids were recognized to be: Ctenacaridae, Aphelacaridae, Parhypochthoniidae, Brachychthoniidae, Cosmochthoniidae, Sphaerochthoniidae, Lohmanniidae and Protoplophoridae. In the present paper the description of a new species of the family Sphaerochthoniidae is presented.

In the description, chaetotaxic notations and other characters follow the terminology of BALOGH & BALOGH (1992), GRANDJEAN (1940), MORITZ (1976) and MAHUNKA & ZOMBORI (1985). The drawings were made with the aid of a camera lucida attached to a compound microscope, and the micrographs taken with a SEM (JEOL JSM-5200).

*Sphaerochthonius spectabilis* sp. n.

**Type material:** Holotype ♀, Turkmenistan Kara-Gidjak, April 1975, from excrement in chambers of termite nest, D. P. Zuzikov leg., deposited in Department of Entomology, Faculty of Biology, Moscow Lomonosov State University, Moscow.

1. Institute of Soil Science and Photosynthesis, Pushchino, Moscow district, Russia.
2. Zoological Museum, University of Turku, FIN -20500 Turku, Finland.
3. Department of Entomology, Faculty of Biology, Moscow Lomonosov State University, Moscow, 119899 Russia.

*Acarologia*, t. XXXVII, fasc. 3, 1996.
FIG. 1: *S. spectabilis* nov. spec.


Paratypes: 2 ♀, 4 nymphs with same data as holotype; 3 ♀ and 2 nymphs, Turkmenistan Dushak, 8–12 June 1981, from excrement in chambers of termite nest from depth 0–40 cm, D. P. Zuzikov leg., deposited in Institute of Soil Science and Photosynthesis, Pushchino, and 11 ♀, one nymph and larva (on SEM stubs) with same locality data, deposited in the Zoological Museum of Turku University.


Hysterosoma elongated and oval (Fig. 1a; Pl. I: 1, 2). Gnathosoma covered frontally by rostrum (Pl. II: 1).

**Prodorsum.** Characteristic patterns: transversal and longitudinal ridges formed from cerotegument at base and middle part of prodorsum. Close to margin of rostrum is a pattern of almost parallel lines (Pl. II: 1). Rostrum tapers to its mid-line, ending in a sharp point. Between the rostral setae is a nose-shaped formation (Fig. 1d). All prodorsal setae, except exobothridial setae exa, T-shaped and biramous; lamellar and rostral setae mostly widened, leaf-shaped; interlamellar setae narrower (Pl. II: 4). Two pairs of exobothridial setae: exa very small and slightly spinose; exp T-shaped, longer and biramous with bristles (Pl. II: 3). Head of sensillus twice as long as stalk and slightly broadened with bristles.

Segmentation and setation of the notogaster. Adult mites with only one transverse suture. Four pairs of setae on shield *Na*: *c*¹, *c*₂, *c*₃ and *d*₃, T-shaped, biramous, widened frontally, with long, narrower posterior part (Pl. I: 1) in adult. Around
PLATE I: *S. spectabilis* nov. spec.
PLATE II: *S. spectabilis* nov. spec. (adult).

1. — Lateral side of prodorsum, 2. — Dorsal side of prodorsum, 3. — Setae *exa, exp* and sensilla, 4. — Seta *la.*
border of each seta is a thick row of small bristles, which may also sometimes partly cover the flat part of surface.

Anterior part of shield Py covered by posterior part of shield Na, which appears transparent under a light microscope, revealing two pairs of very short, thin setae, d1 and d2. Setae e1 and e2 of adults situated far from frontal border of shield Py; these are T-shaped and widened in the same way as setae c1-c3. Narrow portions of setae e1 directed backwards, while setae e2 are situated transversally, with the ends directed to lateral sides. Behind row of setae e1-e2 are especially widened setae, f1 (Pl. I: 1, 2) and f2, which, like setae h1-3 and p1-3, are more widened than the other notogastral setae, almost round with secondary setal rows on border parts and covering most of the surface.

Nymphs with two sutures (Fig. 1c; Pl. 1: 3). Four pairs of setae on shield Na: c1, c2, c3 and d4, these notogastral setae being T-shaped, with long cilia. Anterior part of notogastral mid-shield (Nm) with two pairs of very short, thin setae, d1 and d2 (Fig. 1e). On shield Py setae e1 and e2 not T-shaped, but “tree-shaped”, their stalks narrow with branches of secondary ciliation. Longest branches start at base of setae and become shorter at ends of setae. Setae f1 (Pl. I: 3) and f2 T-shaped, crossbars with long, branched secondary cilia. Setae h1-3 and p1-3 similar to f1 and f2.

Larvae with three sutures (Pl. I: 4). Shield Na with four pairs of setae: c1, c2, c3 and d4; T-shaped, very long, narrow crossbars with secondary cilia. Anterior part of notogastral mid-shield (Nm) with two pairs of very short, thin setae, d1 and d2. Shield Nm2 with two pairs of setae, e1 and e2. These setae also “tree-shaped”, but their stalks are very narrow, with branches of cilia. Setae f1 and f2 and setae h and p of shield Py similar to those of nymphs, but crossbars narrower.

Integument of body. Surface of shields Na, Py and Pl (pleural) covered by cerotegument with special pattern. Viewed through the cerotegument, using transmitted light, a regular six-sided “net” with a central circle can be seen (Fig. 1c), but scanning electron micrography (Pl. III: 1) shows the surface of the body covered by small “flowers” with small, round central holes. Each angle of the triangular wax-formation (“petal”) is directed toward its own aperture. The surface of the epicuticle in-between these triangles is flat, smooth and without cerotegument. In transverse section (Pl. III: 2) it can be seen that each pore is connected to its own chamber in the procuticle. Walls of chambers formed by sides of the six-sided nets. The angles of the six-sided nets form thicker, triangular procuticles on which triangular wax-layers have been secreted.

Surface of epicuticle of nymphs and larvae in Scanning Electron Microscope (Pl. I: 3 & 4) flat and smooth, showing only irregularly-ordered pores of procuticle canals, whereas under the light microscope six-sided nets are slightly noticeable in some places.

The surface of the integument on the legs and the prodorsum does not show the complicated pattern mentioned above; there are only ridges and small, irregular heaps of wax-formation.

Ventral side. Palps with five articles (Pl. IV: 2). Chaetotaxy: 0-2-1-2-10. Epimeral formula 3-3-3-3, all setae rough-haired. Eight pairs of setae on oval genital plates (Pl. III: 3). Anal plates very narrow, with 14 pairs of very short, thin setae (Pl. III: 4; Fig. 1b). Adanal plates at least twice as wide as anal ones, and covered by four pairs of round, widened setae.

Legs. Chaetotaxy: I (0-3-4-6-19), II (1-5-4-6-17), III (2-3-3-4-12) & IV (2-3-3-4-11). Solenidiotaxy: I (0-1-3), II (0-1-2), III (0-1-0), IV (0-1-0). Solenidion var of tibia I on a special projection (Pl. IV: 1). Solenidion ωp is thick, blunt-ended and shorter than slender solenidia ωl and ωv. Famulus ε short and blunt. Every leg has modified, T-shaped or ramose setae as follows: on femur I, II, III & IV setae d and l; on genu II setae d; on femur and genu III & IV setae d and l (Pl. III: 3). Setae ωv, m1 and m2 (tarsus I) thick, short and feathered. Legs with three claws; lateral claws narrower and more slender than central ones.

Diagnosis: Sphaerochthonius spectabilis differs from all known species of family Sphaerochthoniidae by the strongly widened setae of the prodorsum and notogaster, the number of anal setae, the epimeral formula, and the characteristic structure of the integument. Sphaerochthonius fungifer
PLATE III: *S. spectabilis* nov. spec. (adult).
Mahunka, 1983 has widened T-shaped setae on the prodorsum and notogaster ($c_1$-$c_3$), but differs from $S. spectabilis$ in the form of the sensillae, setae $e$–$h$, anal setae and the number of anal setae. $S. spectabilis$ differs from $S. bengalensis$ Sanyal and Sengupta, 1990 by the form of the exobothridial and notogastral setae, especially $e_1$, by the sculpturing of the cerotegument at base and middle part of the prodorsum, and by the number of anal setae.

REFERENCES


