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 2023 (Volume 63): 450 €

<http://www1.montpellier.inra.fr/CBGP/acarologia/subscribe.php>

Previous volumes (2010-2021): 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)

Supporting agricultural research
for sustainable development

**Acarologia is under free license and distributed under the terms of the
Creative Commons-BY**

A new species of *Ameroseius* (Mesostigmata: Ameroseiidae) from India

Asit K. BHATTACHARYYA and Suvendu KHETO

(Received 22 June 2015; accepted 02 September 2015; published online 30 September 2015)

Department of Zoology, Y.S. Palpara Mahavidyalaya, Palpara, Midnapore (E), West Bengal, India 721 458. asitzsi@yahoo.com, skheto91@gmail.com

ABSTRACT — Adult stages of *Ameroseius sternalis* n. sp., collected from soil and nests of *Vespa affinis* (Linnaeus, 1764) are described and illustrated.

KEYWORDS — *Ameroseius sternalis* n. sp.; *Vespa affinis*; nest; soil; India

INTRODUCTION

Species of the genus *Ameroseius* Berlese, 1904 are known to occur in a variety of habitats like plant parts, soil and litter, house dust, compost heap, humus, bracket fungi, nests of mammals, birds and social insects etc. The genus is reported from all continents, excepting Antarctica, and, are known by around 140 species (Beaulieu *et al.*, 2011). Halliday (1997) provided an excellent review of Australian Ameroseiidae. Based on the number of setae present on sternal shield, Karg (2005) while reviewing the family, divided Ameroseiidae into two groups. Indian ameroseiid fauna is very little explored. *Indoseius stridulans* originally described by Evans (1955) from India has been transferred to *Neocypholaelaps* by Evans (1963) which has been later recognized by Baker and Delfinado-Baker (1985), Haq (2001), Moraes and Narita (2010) and Narita *et al.* (2011). Other ameroseiid species known from India are *Neocypholaelaps pradhani* Gupta (1969), *Kleemannia bengalensis* Bhattacharyya (1972) and *Ameroseius dipankari* Bhattacharyya (2004). Kumud *et*

al. (1989) recorded *A. plumigera* and *A. plumosus*. Moraes and Narita (2010) retained *N. pradhani* in its original genus. Westerboer (1963) reclassified *A. imitans* Berlese (1910) as *Lasioseius imitans*. However, on the basis of observation of Lindquist *et al.* (2009) we suggest that *dipankari*, *plumigera* and *plumosus* should be retained in the genus *Kleemannia*. Therefore, in view of the present taxonomic findings it may be concluded that the new species, *i.e.*, *Ameroseius sternalis*, is the first record of the genus *Ameroseius* from India.

MATERIALS AND METHODS

Acarines were extracted from nest material and soil samples with the help of Berlese-Tullgren dry funnel extraction apparatus. Type materials are presently deposited in the Department of Zoology, Y. S. Palpara Mahavidyalaya which in due course will be deposited in the National Zoological Collection (NZC), Zoological Survey of India, Calcutta. Terminology and abbreviations of Lindquist and

FIGURE 1: *Ameroseius sternalis* n. sp., female: A – Dorsum; B – Venter; C – Tectum; D – Chelicera; E – Leg II; F – Leg III.

Evans (1965) are followed in this description. Measurements of shields are taken at their widest point.

TAXONOMY

Ameroseius sternalis n. sp. (Figures 1-2)

Diagnosis — Anterior margin of holodorsal shield densely denticulate. Four pairs of small lateral marginal setae (r4, r5, R1 and R5); setae r6 long, narrow, leaf-like. Female without any metasternal shield; setae st3 placed on soft membrane. Male with three pairs of medioventral setae (Jv1, Jv2 and Jv3) on ventri-anal shield. Opisthogastric membrane of female and male with one and three pair of pores respectively. Ventri-anal shield of male with paired pores. Setae s2, r5, r6, R1, R5 and Z5 setae raised on tubercles.

Material examined — Holotype ♀, India, West Bengal, Sitala, 22°25.769'N, 88°26.791'E; nest of

Lesser Banded Hornet, *Vespa affinis* (Linnaeus, 1764); 9 November, 2014; B. Sanfui coll. Paratypes: 5 ♀♀, 2 ♂♂, collection data same as in holotype. 2 ♀♀, India, West Bengal, Hoogly, Harihar, 22°50.118'N, 87°57.449'E; soil under grass; 8 November, 2014; S. Kheto coll. 2 ♂♂, India, West Bengal, Purulia, Bondi Village, 23°07.092'N, 86°13.906'E; soil; 8 March, 2015; S. Kheto coll.

Female: Dorsum (Fig. 1A) — Holodorsal shield 321 – 385 µm long and 207 – 237 µm wide, heavily sclerotized, ornamented, with 29 pairs of setae, podonotal and opisthonotal region with 18 and 11 pairs of setae respectively; setae r4, r5, R1 and R5, being spine-like differs from other finely serrated dorsal setae; setae s2, r5, r6, R1, R5 and Z5 setae raised on tubercles; length of dorsal setae are represented in Table 1. Anterior margin of dorsum, extending upto setae s2, with its distinct shape made by irregular denticle-like structures.

Venter (Figs. 1B-F) — Tritosternum small, with

marginally pilose laciniae; length of tritosternal base and laciniae almost equal. Sternal shield smooth, 63 μm long, 90 μm wide, with st1 and st2; st3 placed on soft membranous integument; st1 shortest (10 μm long), setal length of st2-st5 varies between 16 μm and 19 μm . Genital shield smooth, posteriorly concave, 120 μm long, 83 μm wide, st5 placed on postero-lateral margins. Anal shield wider (110 μm) than long (90 μm), distinctly reticulated, with paired para- and a post-anal setae; cribrum restricted to a small posteriormost area of the shield.

IV; terminal part of peritrematal shields moderately widened and reaching beyond coxae IV.

Hypostomal groove narrow; denticles not obviously discernible; shape of tectum as in Fig. 1C; corniculi bifid, weakly sclerotized; all setae simple. Palp apotele two-tined. Cheliceral fixed digit tridentate, movable digit edentate (Fig. 1D); pilus dentilis short and simple.

Legs I-IV with claws and ambulacra; setae on legs simple to pilose (Figs. 1E-F); length (excluding ambulacra) of legs I-IV: 277 μm , 222 μm , 205 μm and 259 μm .

299

TABLE 1: Setal length (μm) of *Ameroseius sternalis* n. sp.

Setae	♀	♂	Setae	♀	♂	Setae	♀	♂	Setae	♀	♂
j1	23	21	z2	23	19	s1	26	21	r2	33	35
j2	23	19	z4	33	32	s2	26	24	r3	43	49
j4	23	21	z5	26	19	s5	46	41	r4	10	8
j5	27	38	z6	30	21	s6	60	54	r5	10	8
j6	43	43	Z1	23	24	S2	56	46	r6	23	19
J2	39	43	Z2	26	21	S4	60	57	R1	10	8
J4	66	46	Z4	26	21	S5	63	51	R5	10	8
			Z5	90	70						

Sterniti-genital shield oblong, 170 μm in length and 73 μm in width, reticulation weak or not properly discernible, with five pairs of setae (st1, st2, st4 – 12 μm ; st3, st5 – 10 μm). Peritrematal shield posteriorly comparatively wider but shorter than that of female (Fig. 2B). Metapodal shield shorter and more ovoid than in female.

Ventri-anal shield 340 μm long and 282 μm wide, delicately reticulate, with Jv2, Jv3 and Zv2 of equal length (8 μm), paired para- and a post-anal setae of uniform length (19 μm), with one pair of pore. Opisthogastric membrane reticulated as delineated in Fig. 2B, with three pair of pores and two pairs of setae (10 μm).

Legs I-IV with pulvilli and claws, 247 μm , 210 μm , 193 μm and 249 μm long respectively, leg chaetotaxy same as in female.

Hypostomal groove narrow, deutosternal denticles not properly discernible; corniculi, setae same as in female. Chelicerae weakly developed, fixed digit unidentate, movable digit without any tooth, spermatodactyl short, wide.

Etymology — The specific epithet, *i.e.*, *sternalis*, refers to the characteristic shape of sternal shield.

Differential diagnosis — The new species, *Ameroseius sternalis* superficially resembles to *Ameroseius corbiculus* (Sowerby, 1806) in the nature of setae as well as shape of ventri-anal shield but greatly differs from *A. corbiculus* in the following aspects: absence of foliately widened vertical setae j1, distinctive anterior body margin, shape of tectum, absence of sub-oval platelets containing st3 setae and exopodal shield. However, the new species can be differentiated from all other known species by the characteristic shape of sternal shield.

ACKNOWLEDGEMENTS

Authors extends their sincere thanks to Prof. Tushar Chakraborty, for providing necessary facilities to carry out this work. The study has been carried out with financial assistance [F. 42–538/2013(SR)(MRP)] from the University Grants Commission for the project entitled '*Diversity of soil mesostigmatid mites (Acarina) inhabiting the agricultural fields of southern West Bengal and their role as potential biocontrol agent*'. Thanks are also extended to Mr. Bablu Sanfui for helping in the collection of wasp nest.

REFERENCES

- Baker E.W., Delfinado-Baker M. 1985 — An unusual new species of *Neocypholaelaps* (Acari: Ameroseiidae) from the nests of stingless bees (Apidae: Meliponinae) — Int. J. Acar., 11: 227-232. doi:10.1080/01647958508683421
- Beaulieu F., Dowling A.P.G., Klompen H., Moraes de G.J., Walter D.E. 2011 — Superorder Parasitiformes Reuter, 1909. In: Zhang, Z. Q. (Ed.). Animal Biodiversity: An outline of higher-level classification and survey of taxonomic richness — Zootaxa, 3148: 123-128.
- Berlese A. 1904 — Acari nouvi. Manipulus II — Redia, 1: 258-280.
- Bhattacharyya A.K. 2004 — A new species of *Ameroseius* (Mesostigmata: Ameroseiidae) from the Indian Thar Desert — Zootaxa, 620: 1-7.
- Bhattacharyya S.K. 1972 — Three new species of mesostigmatid mites (Acarina) from India — Proc. zool. Soc., Cal., 25: 129-134.
- Gupta S.K. 1969 — Description of a new species of mite of the genus *Neocypholaelaps* Vitzthum (Acarina: Ameroseiidae) from India — Oriental insects, 3(4): 335-337. doi:10.1080/00305316.1969.10433926

- Halliday R.B. 1997 — Revision of the Australian Ameroseiidae — Invertebr. Taxon., 10: 179-201.
[doi:10.1071/IT96010](https://doi.org/10.1071/IT96010)
- Haq M.A. 2001 — Life cycle and behaviour of the coconut mite *Neocypholaelaps stridulans* (Evans) (Acari: Ameroseiidae) in India — In: Halliday, R.B., Walter, D.E., Proctor, H.C., Norton, R.A., Colloff, M.J. (Eds.). Proceedings of the 10th International Congress. Melbourne: CSIRO Publishing, pp. 361-365.
- Karg W. 2005 — Neue Erkenntniss zur weit verbreiteten Milbenfamilie Ameroseiidae Evans (Acarina, Parasitiformes) — Abhandlungen und Berichte des Naturkundemuseums Görlitz, 77: 57-75.
- Kumud Mathur, R.B., Mathur, S. 1989 — A preliminary report on the occurrence of house dust mites from Hissar, the subtropical region of Haryana, India — In: Channa Basavanna, G. P., Viraktamath, C. A. (Eds.). Progress in Acarology, Vol. I, Oxford & IBH Publishing Co. Pvt. Ltd., New Delhi, pp. 157-162.
- Lindquist E.E., Evans G.O. 1965 — Taxonomic concept in the Ascidae, with a modified setal nomenclature for the idiosoma of the Gamasina (Acarina: Mesostigmata) — Mem. Ent. Soc. Can., 47: 1-64.
[doi:10.4039/entm9747fv](https://doi.org/10.4039/entm9747fv)
- Lindquist E.E., Krantz G.W., Walter D.E. 2009 — Order Mesostigmata — In: Krantz, G.W., Walter, D.E. (Eds.). A Manual of Acarology, 3rd Edition, Texas Tech University Press, Lubbock, Texas, pp. 124-232.
- Modak A., Saha G.K., Tandon N., Gupta S.K. 1995 — Occurrence of some uncommon dust mites from houses of respiratory allergic patients in West Bengal, India — Ind. J. Acarol., 13 (1 & 2): 29-34.
- Moraes de G.J., Narita J.P.Z. 2010 — Description of a new species of *Neocypholaelaps* (Acari: Ameroseiidae) from Brazil, with a key to the world species — Zootaxa, 2554: 37-44.
- Narita J.P.Z., Moraes de G.J., Fernando L.C.P. 2011 — Two species of *Neocypholaelaps* from Sri Lanka (Acari: Ameroseiidae), with description of a new species — Zootaxa, 2741: 59-65.
- Westerboer I. 1963 — Die Familie Podocinidae Berlese, 1916 — In: Stammer, H.J. (Ed.). Beiträge zur Systematik und Ökologie Mitteleuropäischer Acarina. Band 2, Mesostigmata 1. ect. 4. Geest & Portiz, Leipzig, pp. 179-450.

COPYRIGHT

Bhattacharyya A.K. and Kheto S. Acarologia is under free license. This open-access article is 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.