

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

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**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

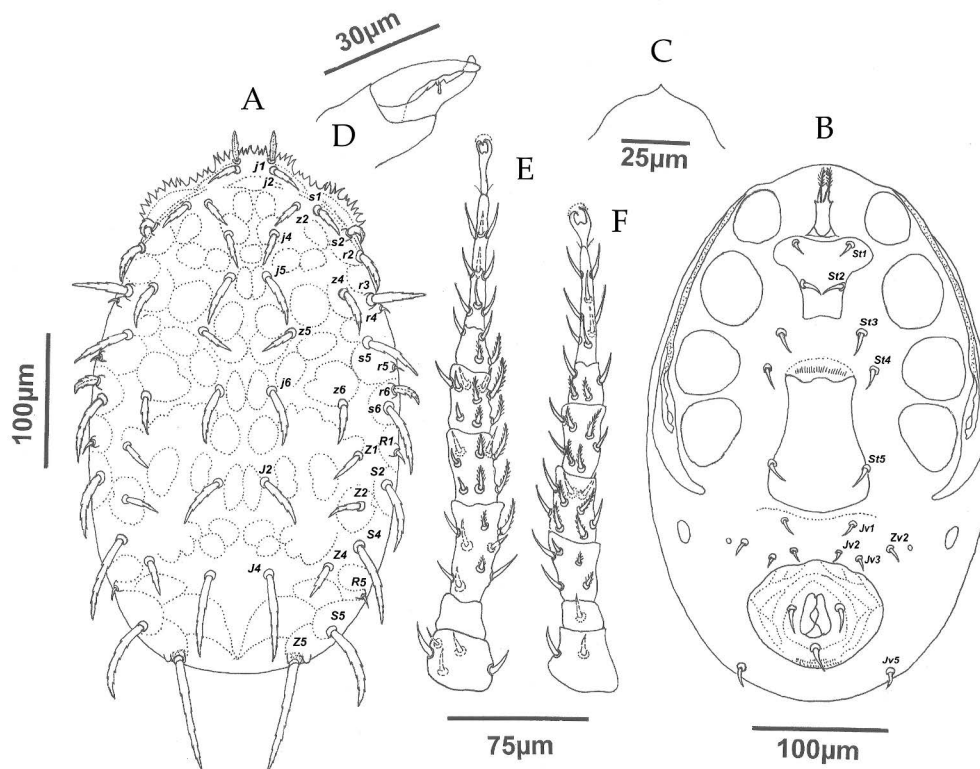


FIGURE 1: *Ameroseius sternalis* n. sp., female: A – Dorsum; B – Venter; C – Tectum; D – Chelicera; E – Leg II; F – Leg III.

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

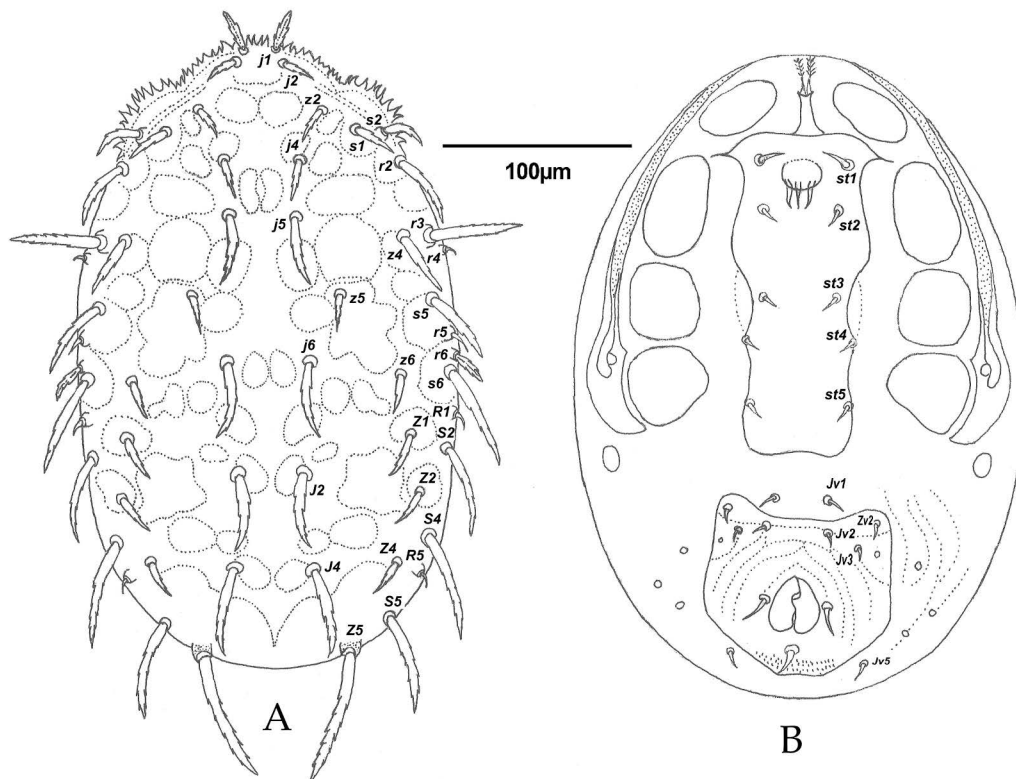


FIGURE 2: *Ameroseius sternalis* n. sp., male: A – Dorsum; B – Venter.

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

Opisthogastric soft integument with five pairs of simple seate, four of them placed between genital and anal shield, setae Jv5 placed close to posterior margin of idiosoma; metapodal shields paired, oval. Anterior section of peritreme reaching beyond anterior margin of coxae I; stigmata placed beside coxae

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  $\mu\text{m}$ , 222  $\mu\text{m}$ , 205  $\mu\text{m}$  and 259  $\mu\text{m}$ .

**Male** (Figs. 2): Dorsal shield entire, 267 – 291  $\mu\text{m}$  long and 168 – 188  $\mu\text{m}$  wide, ornamented as in female, dorsal setae similar to those as in female, length of dorsal setae represented in Table 1, setae J2 comparatively longer than those of female (Fig. 2A).

TABLE 1: Setal length ( $\mu\text{m}$ ) 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  $\mu\text{m}$  in length and 73  $\mu\text{m}$  in width, reticulation weak or not properly discernible, with five pairs of setae (st1, st2, st4 – 12  $\mu\text{m}$ ; st3, st5 – 10  $\mu\text{m}$ ). 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  $\mu\text{m}$  long and 282  $\mu\text{m}$  wide, delicately reticulate, with Jv2, Jv3 and Zv2 of equal length (8  $\mu\text{m}$ ), paired para- and a post-anal setae of uniform length (19  $\mu\text{m}$ ), with one pair of pore. Opisthogastric membrane reticulated as delineated in Fig. 2B, with three pair of pores and two pairs of setae (10  $\mu\text{m}$ ).

Legs I-IV with pulvilli and claws, 247  $\mu\text{m}$ , 210  $\mu\text{m}$ , 193  $\mu\text{m}$  and 249  $\mu\text{m}$  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.

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