

TWO NEW SPECIES OF THE GENUS *LASIOSEIUS* (MESOSTIGMATA : ASCIDAE) FROM INDIA

A.K. BHATTACHARYYA, A.K. SANYAL and T. BHATTACHARYA*
Zoological Survey of India, M-Block, New Alipore, Calcutta 700 053

INTRODUCTION

The mites of the genus *Lasioseius* Berlese, 1916 are very little known from Indian region. Prior to this study, only six species of *Lasioseius* were known from India. Chant (1960) described one new species of *Lasioseius* from citrus tree in Assam. Bhattacharyya (1968) described two new species from the soils of West Bengal. Ramdas and Ghai (1968) also described a new species from wheat plant in Delhi. Later, in 1992 one new species was described from bird's nest in West Bengal by Gupta and Paul. Recently Bhattacharyya *et al.* (1997) described one new species from squirrel nest in West Bengal.

Chaetotactic formulae are based on the review of Lindquist and Evans (1965). All measurements are given in microns(μ).

The type materials are deposited in the National Zoological Collection of Zoological Survey of India, Calcutta.

Key to The Indian Species of *Lasioseius*

1. Dorsal shield with 22 pairs of setae; ventri-anal shield with 6 pairs of pre-anal setae.2
- Dorsal shield with more than 22 pairs of setae, ventri-anal shield with 3-4 pairs of pre-anal setae... 5
2. Lateral membrane of dorsum with 2 pairs of marginal setae. 3
- Lateral membrane of dorsum with more than 2 pairs of marginal setae. 4
3. Endopodal shield absent; one pair of ventral setae around ventri-anal shield.
..... *L. malaca* Gupta and Paul, 1992
- Endopodal shield present; two pairs of ventral setae around ventri-anal shield.
..... *L. parberlesei* Bhattacharyya, 1968
4. Lateral membrane of dorsum with 3 pairs of marginal setae; two pairs of ventral setae around ventri-anal shield. *L. terrestris* Ramdas and Ghai, 1968

* Department of Zoology, Vidyasagar University, Midnapore 721102, West Bengal, India

- Lateral membrane of dorsum with 4 pairs of marginal setae; one pair of ventral setae around ventri-anal shield. *L. indicus* sp. nov.
- 5. Dorsal shield with 31 pairs of setae; movable digit of chelicera unidentate.
..... *L. quadrisetosus* Chant, 1968
- Dorsal shield with more than 31 pairs of setae; movable digit of chelicera multidentate. ... 6
- 6. Dorsal shield with 35 pairs of setae; one pair of metapodal shield; ventri-anal shield with 3 pairs of pre-anal setae. *L. sahai* sp. nov.
- Dorsal shield with 36 pairs of setae; two pairs of metapodal shield; ventri-anal shield with 4 pairs of pre-anal setae. *L. reticulatus* Bhattacharyya, 1968

DESCRIPTION OF SPECIES

Lasioseius indicus sp. nov.

(Text-figs. 1-8)

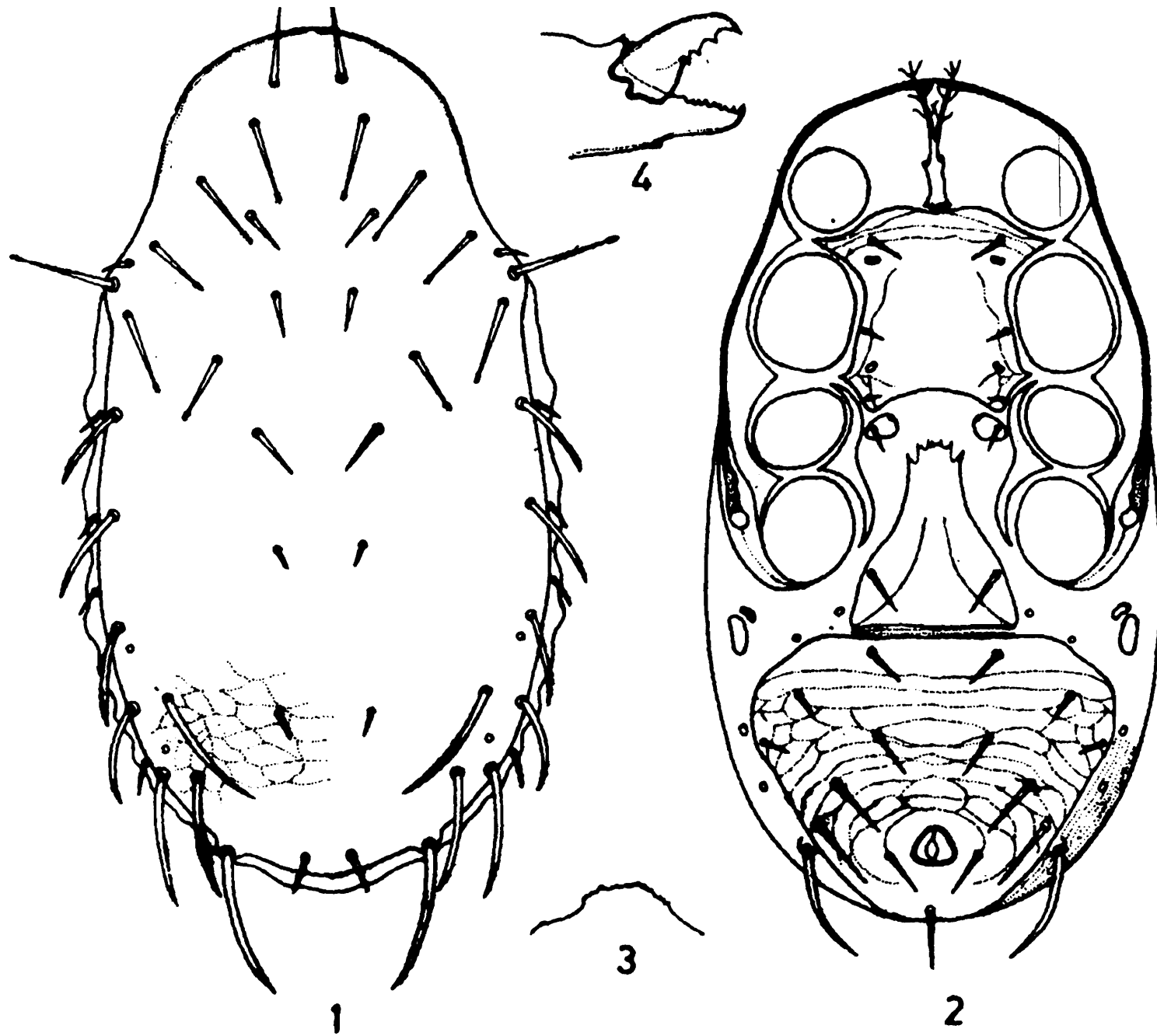
Female : Dorsal shield 340.4 long and 199.8 wide, entire, reticulated, bearing 22 pairs of setae, 12 pairs on anterior region; j2, j4, j5, j6 and r2 simple, seta s3 serrated, others pilose at tip only; humeral seta (r3) 48.1 long; posterior region with 10 pairs of setae; except J2, J4 and J5 all setae serrated; Z4 and Z5 five and six times longer than J5 (11.1); lateral membrane with 4 pairs of simple marginal setae (Fig. 1).

Bipartite tritosternum with narrow base, lacinae finely pilose distally; sternal shield (85.1 long, 11.1 wide) with 3 pairs of setae, anterior region lineated; metasternal shield with a seta; genital shield truncate posteriorly, with a pair of setae; endopodal plate well-developed; two pairs of conspicuous metapodal shields present. Ventri-anal shield (133.2 long, 162.8 wide) reticulated and with 6 pairs of setae (excluding a pair of para- and a post-anal setae). Stigma lying at level of coxa IV; peritreme extending beyond paravertical seta; post-stigmatal extension of peritrematal shield formed into a tubular shape, fused with exopodal shield curving inward to meet coxa IV; ventral interscutal membrane behind coxa IV striated irregularly, bearing scutellae and two setae (Fig. 2).

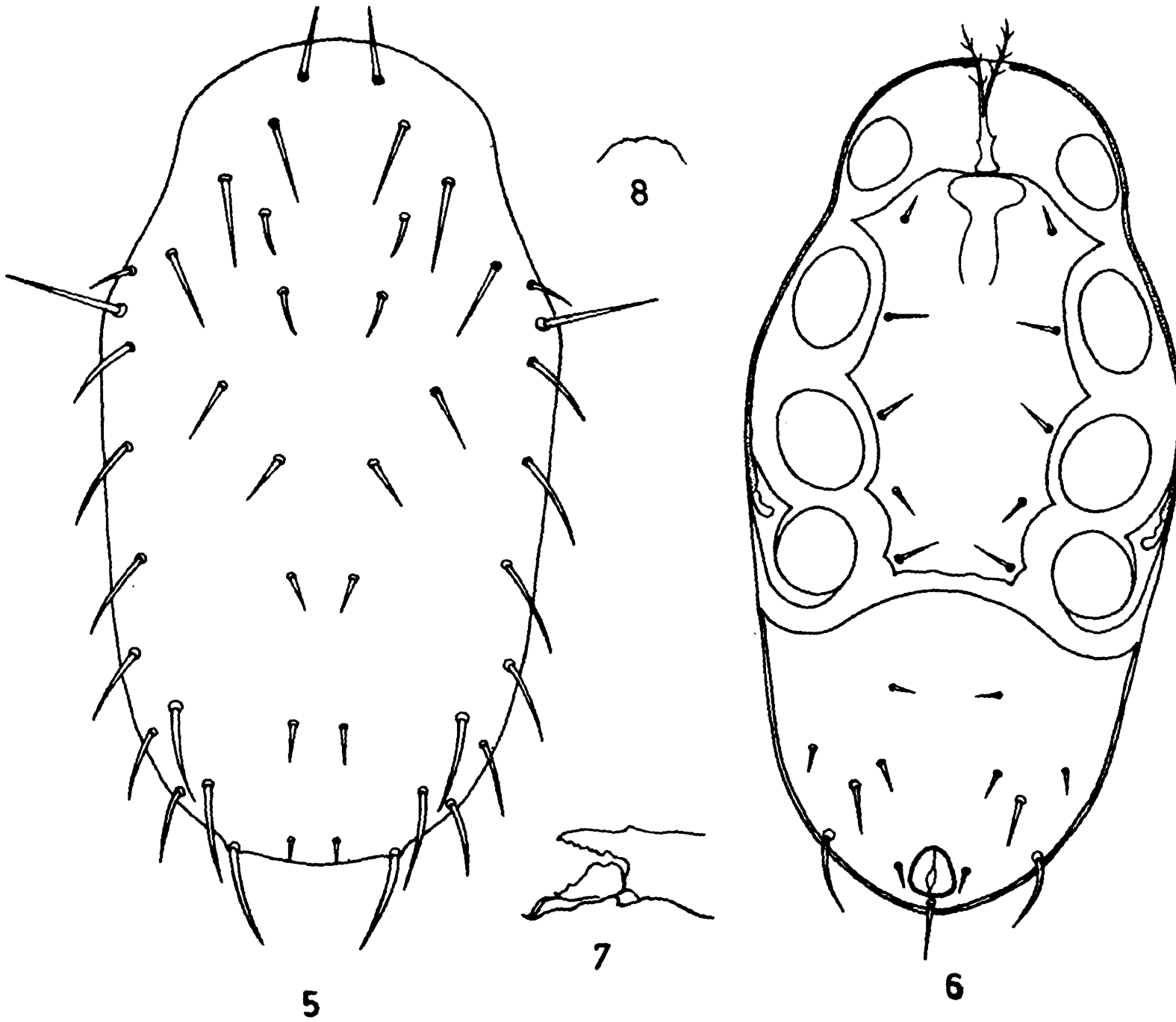
Tectum minutely denticulate (Fig. 3); pedipalp composed of five segments, all setae simple; specialized seta on palpal tarsus with two tines. Movable digit of chelicera provided with four teeth, fixed digit multidentate (Fig. 4). Hypostomal setae normal for genus. Ventral groove of gnathosoma with four rows of deutosternal denticles, with 11-15 denticles in each row.

Legs I-IV with well-developed claws and pulvilli.

Male : Dorsal shield 240.5 long and 466.2 wide, faintly reticulated with 22 pairs of simple to pilose setae; 12 pairs on anterior region, humeral setae (r3) 70.3 long; posterior region with 10 pairs of setae, Z5 and Z4 nearly five times longer than J5 (14.8); two pairs of simple marginal setae on lateral membrane (Fig. 5).



Figs. 1-4. *Lasioseius indicus* sp. nov. Female. 1. Dorsal view; 2. Ventral view; 3. Tectum; 4. Chelicera.



Figs. 5-8. *Lasioseius indicus* sp. nov. Male. 5. Dorsal view; 6. Ventral view; 7. Chelicera; 8. Tectum.

Tritosternum bipartite with sparsely pilose lacinae; sterniti-genital shield with genital aperture situated on anteromedian region and with 5 pairs of setae. Ventri-anal shield bearing 5 pairs of setae (excluding a pair of para- and a post-anal setae), para-anal setae at mid-level of anal aperture. Peritreme, peritrematal and exopodal shields same as in female.

Tectum denticulate (Fig. 7); apotele two-tined. Fixed digit of chelicera unidentate, movable digit multidentate, associated with spermadactyl process (Fig. 8).

All legs with ambulacra and claws.

Material examined : *Holotype* female, INDIA : Tamil Nadu : Chennai : Valasaravakkam; ex. grassland soil; 13.vi.1995; coll. T. Selvan. One paratype male and two paratype females, collection data same as for holotype.

Remarks : *Lasioseius indicus* sp. nov. superficially resembles with *L. lindquisti* Nasr and Abou-Awad, 1987, in having the same number of dorsal and ventral setae and similar pattern of reticulation of dorsal shield but the new species can be readily separated from *L. lindquisti* by following characteristics : shape of sternal, peritrematal and exopodal shields and tectum, very large endopodal plates, placement of sternal setae I in relation to anterior margin of sternal shield and number of teeth on fixed digit of chelicera.

***Lasioseius sahai* sp. nov.**

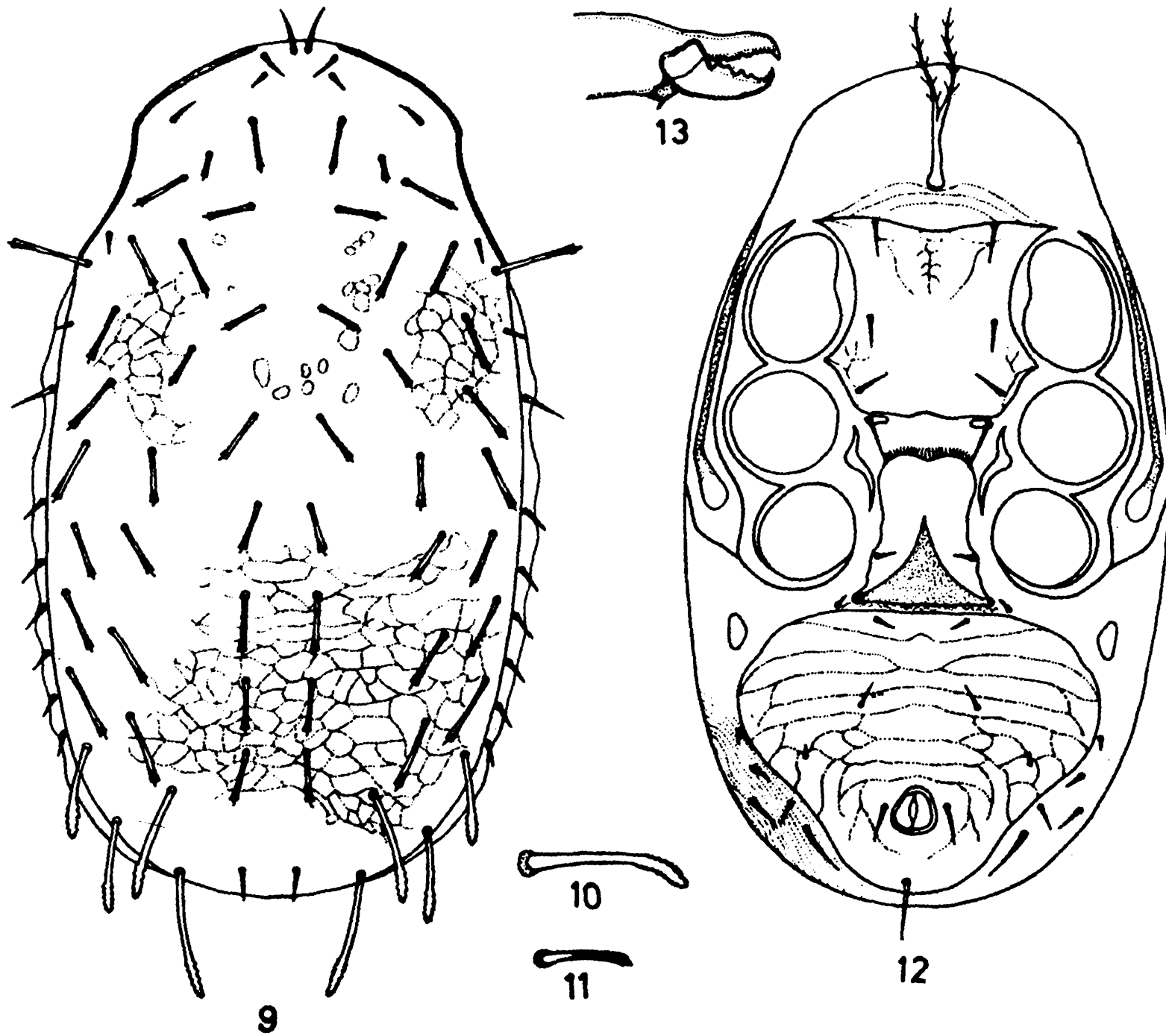
(Text-figs. 9-13)

Female : Dorsal shield 455.1 long, 244.2 wide, entire, posterior region densely reticulated (Fig. 9), with 35 pairs of setae of which 20 on the anterior region, seta r3 largest (51.8) among them; setae j1, j2, z1, r2, r4 and J5 simple; Z4, Z5, S4 and S5 with distinctive shape; remaining setae lanceolate in shape; setae Z5, S4 and S5 five, four and five times longer than seta J5 (11.1); lateral membrane with 7 pairs of simple marginal setae, submarginal absent (Figs. 10 & 11).

Tritosternum with a long basal part and a pair of sparsely pilose lacinae. Pre-sternal area lineated. Sternal shield (129.5 long, 129.5 wide) well-developed, unique reticulation along anteromedian region and with fine granulation; first pair of sternal setae placed on anterior margin of sternal shield; metasternal shield bearing a seta; genital shield partly granulated, widened behind genital seta, posterior margin truncate. Ventri-anal shield 151.7 long and 188.7 at widest point, reticulated, bearing 3 pairs of setae (excluding a pair of para- and a post-anal setae); para-anal setae at mid-level of anal aperture; post-anal seta largest; six pairs of setae around ventri-anal shield behind coxa IV, posterior most largest. Large stigmatal opening between coxae III and IV; peritreme visible dorsally, reaching seta z1; peritrematal shield broadly connected to exopodal shield posteriorly, ventral region posterior to coxa IV striated irregularly (Fig. 12).

Apotele two-tined; pedipalp five-segmented. Fixed digit of chelicera with 12 small teeth arranged in a row along its cutting edge, movable digit with 5 teeth (Fig. 13). Gnathosoma with 4 pairs of setae of which *hyp2* largest. Ventral groove of gnathosoma with seven rows of deutosternal denticles.

Leg I-IV with ambulacra.



Figs. 9-13. *Lasioseius sahai* sp. nov. Male. 9. Dorsal view; 10-11. Dorsal setae; 12. Ventral view; 13. Chelicera.

Male : Unknown.

Material examined : Holotype female, INDIA : Mizoram : Lunglei : Sirap; ex. soil and leaf litter; 7.iv.1995; coll. S.S. Saha. Two paratype females, collection data same as for holotype.

Remarks : *Lasioseius sahai* sp. nov. is similar to *L. reticulatus* Bhattacharyya, 1968 in having lanceolate type of setae, similar reticulation of dorsal shield and by the shape of genital shield. However, the new species can be readily distinguished from the latter by the differences in number of setae on dorsal shield, ventri-anal shield and ventral interscutal membrane, shape and number of metapodal plates, shape of endopodal and peritrematal plates and number of teeth on fixed digit of chelicera.

The species is named after Shri S.S. Saha, collector of the species.

ACKNOWLEDGEMENTS

The authors are grateful to the Director, Zoological Survey of India, Calcutta for necessary facilities and to Dr. S.K. Gupta, Jt. Director (Retd.), ZSI for suggestion and encouragement. The first author expresses his sincere gratitude to the Director, Zoological Survey of India for providing a Research Fellowship to carry out the work.

REFERENCES

- Berlese, A. 1916. Centuria prima di Acari nouvi. *Redia*, **12** : 19-67.
- Bhattacharyya, A. K., A. K. Sanyal and T. Bhattacharya. 1997. Three new ascid mites (Acarina : Mesostigmata : Ascidae) from a nest of five-stripped squirrel *Funambulus pennanti* Wroughton in West Bengal, India. *Acarina*, **5**(1-2) : 37-43.
- Bhattacharyya, S.K. 1968. Studies on Indian mites (Acarina : Mesostigma). 6. Six records and descriptions of nine new species. *Acarologia*, **10** : 527-549.
- Chant, D.A. 1960. Description of five new species of mites from India (Acarina, Phytoseiidae, Aceosejidae). *Can. Ent.*, **92** : 58-65.
- Gupta, S.K. and Kasturi Paul, 1992. Nest associated acarines of India with description of seven new species and notes on other arthropod associates. *Entomon.* **17**(1-12) : 71-86.
- Lindquist, E.E. and G.O. Evans, 1965. Taxonomic concepts in the Ascidae, with a modified setal nomenclature for the idiosoma of the Gamasina (Acarina : Mesostigmata). *Mem. ent. Soc. Can.*, **47**, 64 pp.
- Nasr, A.K. and B.A. Abou-Awad, 1987. Descriptions of some Ascid mites from Egypt (Acari : Ascidae). *Acarologia*, **28** : 27-35.
- Ramdas Menon M.G. and Swaraj Ghai, 1968. Further records of the distribution of *Petrobia latens* (Muller) (Acarina : Tetranychidae), a pest of wheat in India together with a description of a new species of predatory mite on the same. *Indian J. Ent.*, **30**(1) : 77-79.