

**NEW DATA ON MITES OF THE GENERA ASCA AND BLATTISOCIUS
(MESOSTIGMATA, ASCIDAE) IN INDIA ALONGWITH THE DESCRIPTION OF
ASCA ANNANDALEI SP. N.**

**НОВЫЕ ДАННЫЕ О КЛЕЩАХ РОДОВ ASCA И BLATTISOCIUS
(MESOSTIGMATA, ASCIDAE) В ИНДИИ С ОПИСАНИЕМ НОВОГО ВИДА
ASCA ANNANDALEI**

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Ключевые слова: Mesostigmata, Ascidae, *Asca annandalei* sp. n., новые находки, *A. pseudospicata*, *Blattisocius patagiorum*; *B. tarsalis*

ABSTRACT

A new species *Asca annandalei* from soil under wild vegetation in West Bengal, India is described and illustrated.

Description of male and female of *Asca pseudospicata* is presented. Male of this species is being reported for the first time. Descriptions of females *Blattisocius patagiorum* and *B. tarsalis* are presented, these species are recorded for the first time from India.

РЕЗЮМЕ

Из Западной Бенгалии описан новый вид мезостигматических клещей *Asca annandalei*, найденный в почве под растительностью. Приводится описание самки и первое описание самца *A. pseudospicata*. Приводится описание самок *Blattisocius patagiorum* и *B. tarsalis*, впервые обнаруженных в Индии.

INTRODUCTION

In comparison to other genera of ascid mites, the genus *Asca* Heyden is well studied in India. Bhattacharyya [1965] and Bhattacharyya *et al.* [1997] published the reports of altogether five species of *Asca* from India. Bhattacharyya [1965] described *Asca pseudospicata* as a new species, based on female specimens from West Bengal. After Karg's [1979] revisionary work on the genus *Asca*, nearly 25 new species have been described thus giving in total nearly 100 species. Out of the

eleven known species of *Blattisocius* Keegan only two species are known from India. The genus *Blattisocius* Keegan was first recorded from India by Bhattacharyya [1972] and the second species is known through the contribution of Chinniah and Mohansundaram [1995].

MATERIAL AND METHODS

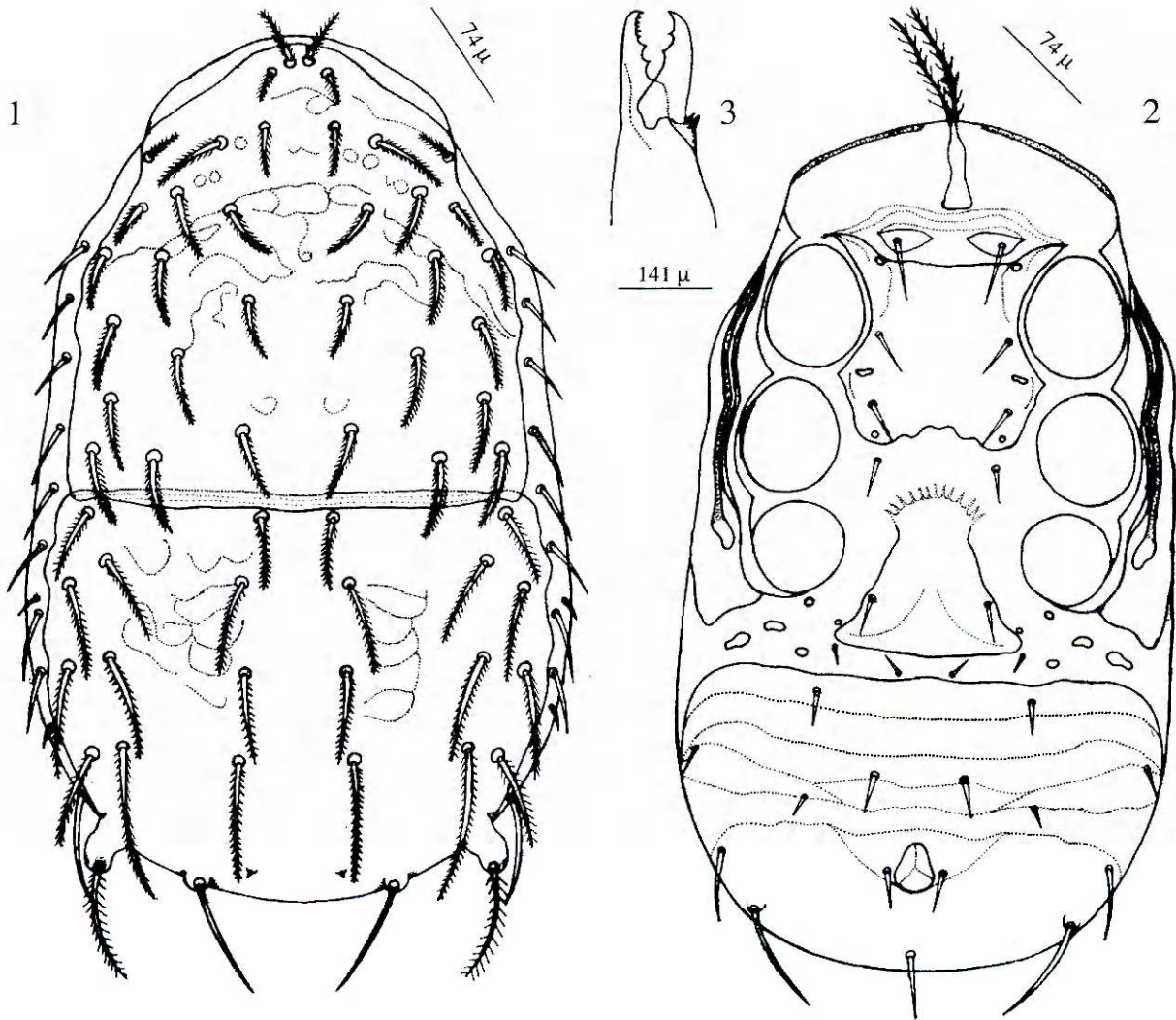
The specimens studied here were collected and extracted by the standard method described by Murphy [1977]. Insect-associated acarines were collected with the help of brush moistened with alcohol. Slide-mounted type material is deposited in the National Zoological Collection, Zoological Survey of India, Calcutta. Chaetotactic concept of Lindquist and Evans [1965] is applied in the following description. All measurements are given in micrometers.

***Asca annandalei*, sp. n.**

Figs. 1–3.

Description of female

Idiosomal dorsum (Fig. 1). Dorsal shield with reticulation and ornamentation, divided into two shields; posterior margin of anterior dorsal shield overlaps the anterior margin of posterior dorsal shield (Fig. 1); anterior dorsal shield 162.8 long, 155.4 wide, with seventeen pairs of strongly pilose setae; posterior dorsal shield 134.9 long, 170.2 wide, with fifteen pairs of setae; all setae except J5



Figs. 1–3. *Asca annandalei* sp.n., female: 1 — dorsal view, 2 — ventral view, 3 — chelicera.

and Z4 pilose in nature; tips of all setae reaching at least up to the base of next setae of the series; setae J1, J3, J4, Z3 and Z5 are 19.25, 31.5, 42.0, 54.26, and 42.0 in length respectively; J5 and Z4 minute in size; inter-socket distances between J2–J2, J3–J3, J4–J4, J4–J5 are 29.6, 37.0, 29.6, 37.0, 29.6, and 33.3, respectively; lateral membrane with eleven pairs of simple marginal setae, ranging between 8.7 to 26.25 in length.

Idiosomal venter (Fig. 2). Base of tritosternum wide, lacinae moderately long, pilose; presternal area between jugular shield and tritosternum lineated (Fig. 2); first pair of sternal setae placed on jugular shield; posterior margin of sternal shield (59.5 long along midline, 87.54 wide between two anterolateral corners) irregular in shape, with two pairs of setae; metasternal setae freely placed on membrane. Genital shield bell-shaped, truncate posteriorly, with paired genital setae. Exopodal shield fused with peritrematal shield and

coxa IV posteriorly, continuous along coxae II–IV and fused with body margin anteriorly. Peritreme extending upto level of paraverticlar setae; stigma situated almost at level of coxa IV; ventral membrane lineated, with two pairs of setae and paired metapodal shields; distribution of scutellae as in Fig. 2. Ventri-anal shield 108.53 long, 178.55 wide, lineated, with six pairs of setae, excluding a pair of para-anal and a post-anal setae, para-anal setae at mid-level of anal aperture.

Gnathosoma (Fig. 3). Anterior margin of epistome smooth, ventral groove with seven rows of deutosternal denticles, with 3–5 teeth in each row, cheliceral movable digit bidentate, fixed digit with several small teeth anteriorly, followed by two teeth of moderate size (Fig. 3).

Legs. Leg setation normal for the genus; most dorsal and lateral setae thickened and borne on raised tubercles.

Male: unknown.

Material examined. Holotype female, Zoological Survey of India Compound, New Alipore, Calcutta, West Bengal; ex soil under wild vegetation; 21.05.1995; A.K. Bhattacharyya coll. Paratype, one female, data same as for holotype.

Distribution. India: West Bengal.

Differential diagnosis. The new species is akin to *Asca nubes* Ishikawa 1969, but the latter differs from new species in that setae Z2, S3 and S4 are simple, by differences in the shape of sternal, jugular and peritrematal shield, and also by the absence of exopodal shield and platelets between genital and ventri-anal shield.

Etymology. The species is named after Dr. T.N. Annandale, founder-director of the Zoological Survey of India.

***Asca pseudospicata* Bhattacharyya, 1965**

Figs. 4–10.

1965. *Asca pseudospicata* Bhattacharyya, *Proc. zool. Soc., Cal.*, 19: 34.

1972. *Asca pseudospicata* [*pseudospicata*] *craenata*, Hurlbutt, *Acarologia*, 13 (2): 283.

1996. *Asca pseudospicata*, Bhattacharyya et al., *Environ. Ecol.*, 14 (4): 850.

Description of female

Idiosomal dorsum. Both dorsal shields distinctly reticulated and sculptured; anterior dorsal shield 152.9 long, 163.4 wide, with seventeen pairs of setae; posterior dorsal shield 160.0–166.7 long, 178.2–182.3 wide, with fifteen pairs of setae; setae Z3 equals to almost half the length of S5.

Idiosomal venter. First pair of sternal setae placed on jugular shield; jugular shield basically rhomboidal in shape with slight variation; sternal shield with two pairs of setae; anterolateral corners of sternal shield extended laterally; metasternal setae without metasternal plate; genital shield truncate posteriorly, with paired genital setae. Ventri-anal shield wider than long, transversely lineated anteriorly, with fifteen setae; endopodal and exopodal shields present; posterior extremities of peritrematal shield encircling coxa IV. Metapodal shield of irregular shape; ventral membrane with two pairs of setae around genital shield.

Gnathosoma. Tectum trispinate, with a small median spine. Apotele two-tined. Movable chela bidentate, fixed chela with 5–6 teeth. Seven rows of deutosternal denticles present.

Legs. Leg setation normal for the genus. Leg setae are borne on tubercles.

Description of male

Idiosomal dorsum (Figs. 4–5). Reticulation on both shields same as in female (Fig. 4); anterior

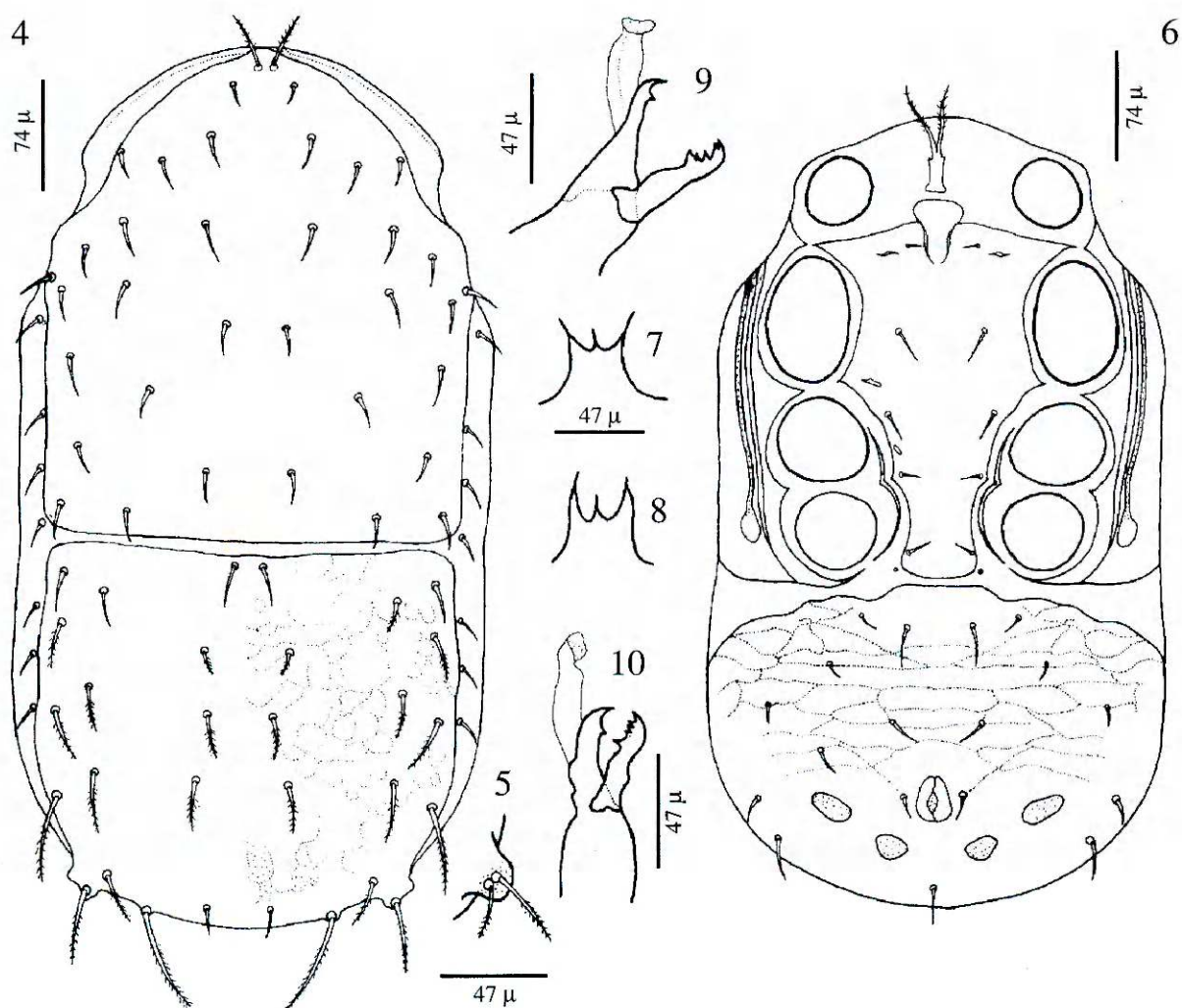
dorsal shield (193.0–196.7 long, 170.2–188.7 wide) with additional one pair *i.e.*, eighteen pairs of setae; posterior dorsal shield (144.3–155.4 long, 114.7–125.8 wide) with fifteen pairs of setae; variation in disposition of setae Z4 and S5 on postero-lateral tubercles shown in Fig. 5; postero-lateral tubercles faintly granulated in some cases. Lateral membrane with seven pairs of setae.

Idiosomal venter (Fig. 6). Sterniti-genital shield widened antero-laterally; setae st1 shortest of all sternal setae (Fig. 6); peritrematal and exopodal shield not fused with sterniti-genital shield, present between coxae II and IV, extending upto mid-region of both coxae. Peritreme same as in female ventri-anal shield lineated, with seventeen setae; para-anal setae placed at mid-level of anal aperture laterally.

Gnathosoma (Figs. 7–10). Tectum same as in female, variation in shape as shown in Figs. 7 and 8. Fixed chela bidentate, movable chela with four teeth anteriorly, spermatodactyl process well-developed; variation in the dentition of chelicerae as figured in Figs. 9 and 10.

Legs. Leg setation same as in female, lateral setae on the genua and tibiae of leg I arises from tubercles; no sexual dimorphism in legs I–IV was observed.

Material examined. Type materials (**Holotype** female, Port Canning, 24 Parganas, West Bengal; ex soil, leaf litter and rotten straw; 21.09.1964; S.K. Bhattacharyya coll. **Paratypes:** One female, Hooghly, West Bengal; ex soil under banana plant; 8.12.1964; D.N. Biswas coll. One female, Hooghly, West Bengal; ex soil under *Citrus* sp.; 8.12.1964; D.N. Biswas coll. One female, Botanical Garden, Howrah; ex bamboo leaf litter; 24.12.1964; D.N. Biswas coll.). One female, Sitala, Sonarpur, 24 Parganas, West Bengal; ex squirrel nest; 14.11.1996; A.K. Bhattacharyya coll. Three females, Sitala, Sonarpur, 24 Parganas, West Bengal; ex soil and litter; 21.03.1995; A.K. Bhattacharyya coll. Three females, Sitala, Sonarpur, 24 Parganas, West Bengal; ex grassland soil; 26.11.1995; A.K. Bhattacharyya coll. Four females, Sitala, Sonarpur, 24 Parganas, West Bengal; ex squirrel nest; 23.06.1996; A.K. Bhattacharyya coll. Forty females, Sitala, Sonarpur, 24 Parganas, West Bengal; ex squirrel nest; 6.11.1996; A.K. Bhattacharyya coll. Sixteen males and three females, Sitala, Sonarpur, 24 Parganas, West Bengal; ex nest of Drongo on *Acacia* sp.; 29.11.1998; A. Purkait coll. Five females and four males, Zoological Survey of India compound, New Alipore, Calcutta, West



Figs. 4–10. *Asca pseudospicata* Bhattacharyya, 1965, male: 4 — dorsal view, 5 — postero-lateral tubercle showing variation of disposition of setae Z4 and S5, 6 — ventral view, 7–8 — variation in tectum, 9–10 — variation in chelicerae.

Bengal; leaf litter; 12.06.1996; A.K. Bhattacharyya coll. Seven females, Zoological Survey of India compound, New Alipore, Calcutta, West Bengal; 18.07.1997; A.K. Bhattacharyya coll. One female, Bhowanipore, Calcutta, West Bengal; ex leaf litter; 6.05.1994; S. Basu coll. Two females, Debra, Midnapore, West Bengal; ex soil and grass; 12.05.1996; S. Pandit coll. Three females, Nehru Garden, Bhubaneswar, Orissa; ex soil and grass; 9.08.1996; A.K. Bhattacharyya coll. One female, Mahabir Deer Park, Vanasthalipuram, Andhra Pradesh; ex decomposed cow-dung; 4.08.1996; A.K. Bhattacharyya coll. Two females, Sikripai, Raygada District, Madhya Pradesh; ex soil and litter beside hill stream; 7.05.1997; A.K. Sanyal coll. Two females, Kanha National Park, Kanha, Madhya Pradesh; ex soil and litter; 13.11.1996; S. Basak coll.

Distribution. India: Andhra Pradesh, Madhya Pradesh, Orissa, West Bengal. Elsewhere: Tanzania.

Remarks. Male of this species is being reported for the first time. The species was not recorded earlier from Andhra Pradesh, Madhya Pradesh and Orissa. Hurlbutt [1972] reported it from Tanzania and designated as superspecies of *Asca craenata* Leon, 1967.

Blattisocius patagiorum Treat, 1966

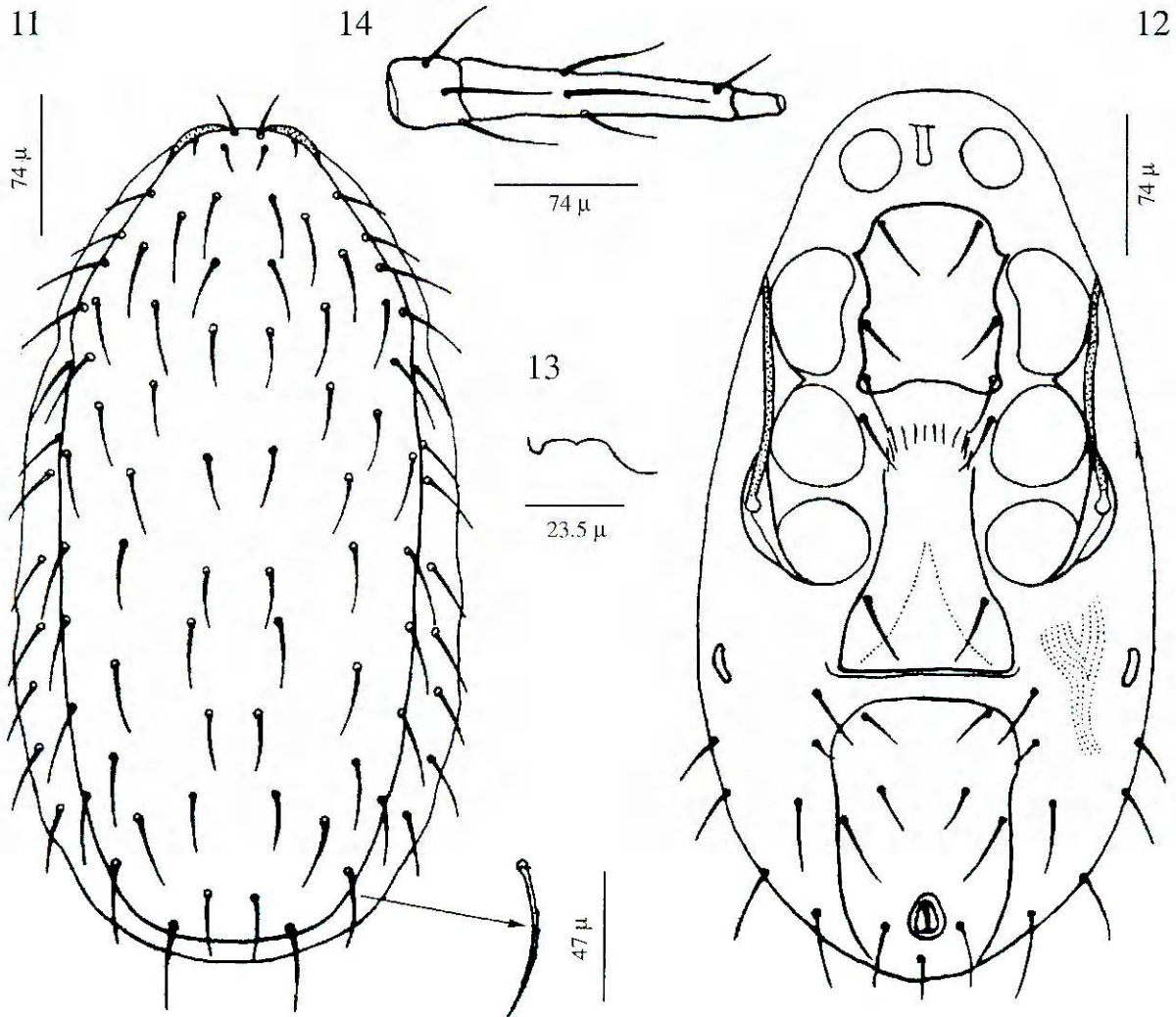
Figs. 11–14.

1966. *Blattisocius patagiorum* Treat, *J.N.Y ent. Soc.*, 74: 143.

1978. *Blattisocius patagiorum*, Haines, *Acarologia*, 20 (1): 21.

Description of female

Idiosomal dorsum. Dorsal shield (444–457 long, 180–187 wide) sclerotized, reticulated, with thirty-three pairs of simple and slightly serrated setae (Fig. 11), eighteen and fifteen pairs of setae on anterior and posterior region respectively; nineteen pairs of marginal and sub-marginal series of setae on lateral membrane.



Figs. 11–14. *Blattisocius patagiorum* Treat, 1966, female: 11 — dorsal view, 12 — ventral view, 13 — tectum, 14 — segmental view of leg IV.

Idiosomal venter. Lacinae short, pilose. Sternal shield with three pairs of setae. Metasternal setae placed on ventral membrane beside coxa III. Paired genital setae on genital shield with three pairs of setae (excluding Jv5). Paired, elongated metapodal shields present. Exopodal shield extending over coxae II and III. Peritrematal shield moderately broad posteriorly, extremely narrow anteriorly; stigma at the end of very short peritreme, situated between coxae III and IV (Fig. 12).

Gnathosoma. Cheliceral fixed digit shorter than movable digit, both digit edentate. Shape of tectum as in Fig. 13.

Legs. All legs with ambulacra and claws; leg IV without macrosetae (Fig. 14); leg I much longer (404.2) than leg II (272.6), leg III (225.6) and leg IV (291). Leg chaetotaxy normal for the genus.

Male: unknown.

Material examined. Seven females, Jhari-pani, Dehra Dun, Uttar Pradesh; ex beetles; 28.07.1965; T.D. Soota coll.

Distribution. India: Uttar Pradesh. Elsewhere: U.S.A.

Remarks. Indian specimens conform well with the description of Treat [1966] and Haines [1978]. However, slight variation in the shape of tectum and length of peritreme (which extends upto mid-portion of coxae II and III in Indian specimens) have been observed. The species was first described by Treat [1966] from U.S.A in association with noctuid moths. The present work records it for the first time from India, in association with beetles.

***Blattisocius tarsalis* (Berlese, 1918)**

1918. *Lasioseus (Lasioseius) tarsalis* Berlese, *Redia*, 13:134.

1929. *Typhlodromus tinievorus* Oudemans, *Ent. Ber.*, 8:34.

1944. *Blattisocius triodons* Keegan, *J. Parasit.*, 30: 181.

1951. *Blattisocius tinievorus* Nesbitt, *Zool. Verh. Leiden.*, 12: 55.

1965. *Blattisocius tarsalis*, Lindquist & Evans, *Mem. ent. Soc. Can.*, 47: 48.

1998. *Blattisocius tarsalis*, Halliday et al., *Invertebr. Taxon.*, 12: 19.

Description of female

Idiosomal dorsum. Dorsal shield (493.4–495.7 long, 240.7–242.8 wide) lightly sclerotized, with thirty-three pairs of simple setae, eighteen pairs on anterior region and fifteen pairs on posterior region, tips of setae on posterior region almost touching the tip of the next setae in the series; eleven pairs of simple setae present on lateral membrane.

Idiosomal venter. Tritosternum normal for the genus, lacinae sparsely pilose. Sternal shield without any reticulation, with three pairs of setae of equal length; metasternal setae on ventral membrane. Genital shield truncate posteriorly, narrow behind genital setae. Ventri-anal shield longer than wide, with three pairs of pre-anal setae, excluding a pair of para-anal and post-anal setae; para-anal and post-anal setae of equal length, interscutal membrane with four pairs of setae and several platelets. Metapodal shield cigar-shaped, placed along margin of lateral membrane. Peritrematal shield fused posteriorly with exopodal plate; peritreme small, extending upto coxa II, stigma at level of coxa III.

Gnathosoma. Tectum smooth. Fixed chela reduced, edentate, movable digit tridentate; pilus dentilis setiform, extremely long. Corniculli slender and convergent.

Legs. Leg setation normal for the genus; legs I–II–III–IV 437.0, 291.0, 238.7 and 302.2 long respectively.

Male: unknown from India.

Material examined. One female, Zoological Gardens, Haddo, Andaman and Nicobar Islands; ex soil; 6.01.1975; S.K. Bhattacharyya coll. One female, Valliya Parathodu Camp, Silent Valley, Palghat District, Kerala; ex leaf litter; 22.01.1980; S.K. Bhattacharyya coll.

Distribution. India: Andaman and Nicobar Islands, Kerala. Elsewhere: Algeria, Australia, Brazil, Canada, Germany, Italy, Mexico, U.K., U.S.A.

Remarks. This is the first record of the species from India.

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