

## A NEW ORIBATID MITE (ACARI) AND FOUR NEW RECORDS OF ORIBATID FROM INDIAN SOILS

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### INTRODUCTION

The topography, climatic conditions, altitudinal modulations and vegetations of the district of Darjeeling, West Bengal harbour the enriched faunal treasure of soil micro-arthropods, especially oribatid mites that live in forest and tea soils of Darjeeling. As oribatid mites are one of the predominating soil micro-arthropod groups among the inhabitants of soil litter in Darjeeling forest and tea fields, a survey programme was undertaken to investigate on the oribatid fauna since 1988. Taxonomic studies of a part of the collected material reveal the occurrence of a new species, *Oxyamerus himalayensis* and four known species distributed over five genera under five families. All the species listed here are new records for India. The genera *Oxyamerus* and *Podopterotegaeus* are recorded here for the first time from India.

The types of the new species and the material of the known species are deposited in the laboratory of the Department of Zoology, Ananda Chandra College, Jalpaiguri-735 101, India. All measurements are in micrometers ( $\mu\text{m}$ ).

### *Oxyamerus* Aoki, 1965

*Oxyamerus* Aoki, 1965 : 161.

The genus *Oxyamerus* was established by Aoki (1965) with type-species *Oxyamerus spathulatus* from Thailand. Balogh (1968) contributed 2 more new species, *O. aokii* and *O. latirostris* from New Guinea. Hammer (1979) created another two new species, *O. hyalinus* and *O. truncatus* from Java. One more new species, *O. hauserorum* was established by Mahunka (1987) from Sabah, East Malaysia. Thus total 6 species are known to occur under the genus *Oxyamerus*. The *Oxyamerus* is a new member in India and same is being reported here with a new species, *Oxyamerus himalayensis*.

***Oxyamerus himalayensis* sp. nov.**

(Figs. 1-7)

*Female* : Colour brownish yellow; length of the body : 430-442; width of the body : 210-218.

Prodorsum more or less as long as broad; elongated rostrum with broader end possessing a small gap at its anterior apex; rostral setae (*ro*) phylliform, thick, hyaline with slightly pointed tips, directed upward, not overlapping each other, originating from lateral side of rostrum, 23-25 long and 7-9 broad; lamellar setae (*le*) simple, very thin with pointed tips, 22-26 long, situated a far behind the rostral tips; interlamellar setae (*in*) short, thick, 11-12 long, located between the pseudostigmata; sensillus (*ss*) thick, thread-shaped, slightly thin gradually at its anterior with terminal pointed end and half of sensillus unilaterally barbed distally, 102-105 long; bothridium (*bo*) as long as broad, partly closed by a lid; exobothridial setae (*ex*) absent.

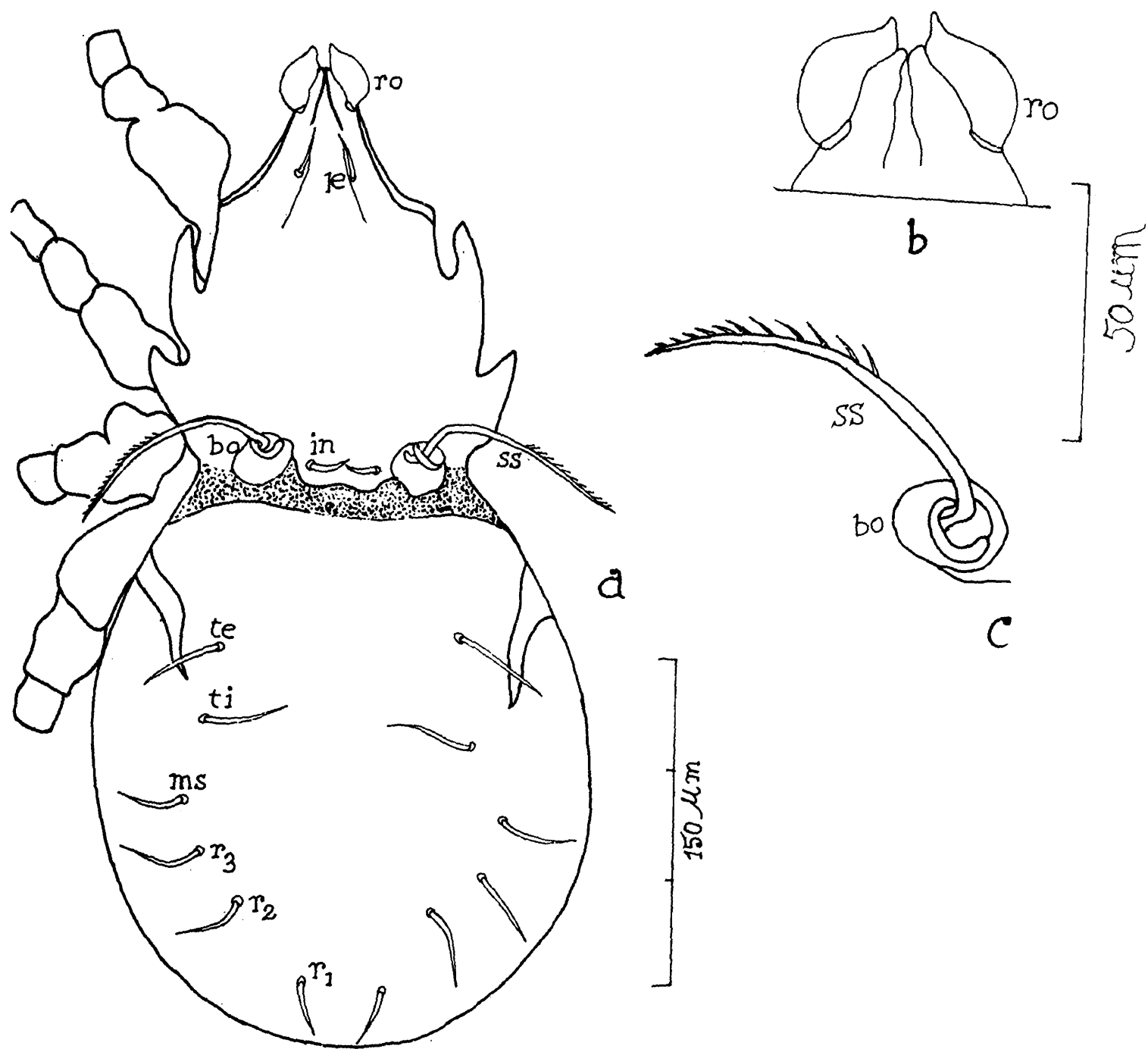
Notogaster only a little longer than broad; anterior notogastral split or latero-anterior keel moderate, ending a little beyond the insertion points of setae *te*; dark band on anterior border of notogaster prominent and well defined, with very prominent anterior undulated end which connects both the pseudostigmata; notogastral setae 10 pairs, but setae *ta* very short and hardly visible, others are simple and moderately with pointed ends, 20-40 long; setae  $p_1-p_3$  directed forwards over the ventral plate and can only be observed in a ventral view; distance  $ms-ms > ti-ti > te-te$ ; distance  $r_1-r_1 < r_2-r_2 < r_3-r_3$ .

Length of anal aperture as long as its maximum width (or each anal plate twice as long as broad), with 2 small, glabrous, nearly equal setae, 7-8 long; adanal setae 2 pairs, setae  $ad_2$  absent,  $ad_1$  and  $ad_3$  short and simple, 12-14 long;  $ad_3$  antero-lateral and  $ad_1$  posterior to anal plate; distance  $ad_3-ad_3 > ad_1-ad_1$ , *iad* small, obliquely placed medio-laterally to anal field; distance between genital and anal apertures 2 times as long as the latter; each genital plate more than twice as long as its maximum width, with 6 simple setae, 16-20 long, 3 of which situated anteriorly and remaining 3 situated postero-laterally to the genital plate; the anterior extreme genital setae ( $gen_6$ ) longer and thicker than others; aggenital setae one pair, simple with pointed tips, 18-20 long, their mutual distance exactly half the distance between anal and genital apertures.

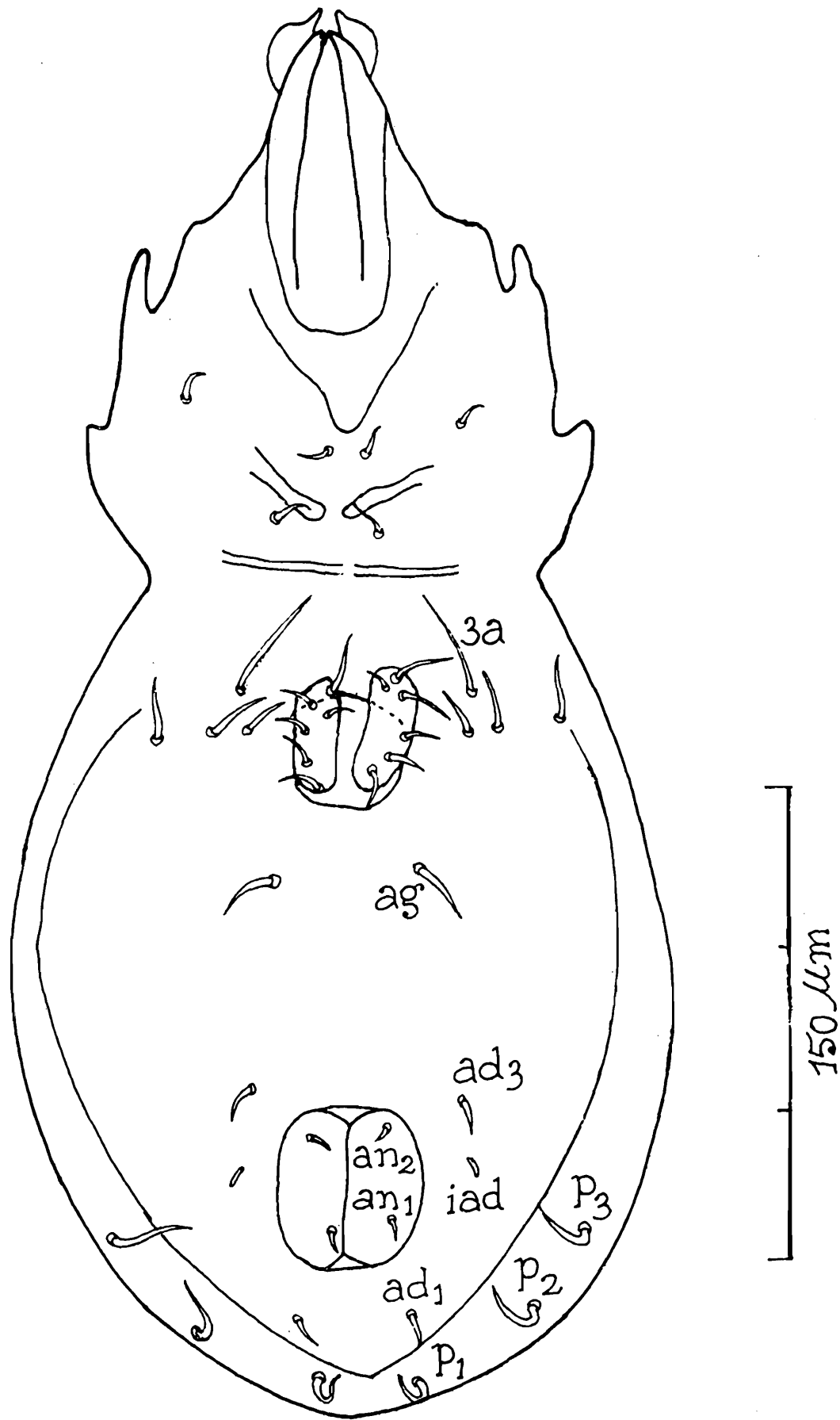
Epimera I and II separated, III and IV fused; epimeral setae simple, 6-40 long, setae *3a* longest; epimeral setal formula 2-1-1-3.

All tarsi monodactylous, claws strongly curved.

*Holotype* Adult (F), INDIA W Bengal Darjeeling, Chandmari Tea Estate (from soil under a decaying tea plant, *Camellia sinensis*), 117 m., 6.vii.1988 (B. K. Mondal coll.); paratype 1 adult (F), INDIA W Bengal Darjeeling, East Sevoke forest block (from soil under the decomposed leaves of *Dalbergia sisoo*), 160 m., 3.ix.1989 (B. G. Kundu coll.); paratypes 2 adult (F), INDIA W Bengal Darjeeling, Sukna forest block (from soil under



**Fig. 1.** (a-c). *Oxyamerus himalayensis* sp. nov. a. *O. himalayensis* (Dorsal view). - b. The anterior distal portion of prodorsum. - c. Bothridium and sensillus : ro = rostral seta, lc = lamellar seta, in = interlamellar seta, bo = bothridium, ss = sensillus, ta, ti, ms, r<sub>1</sub>, r<sub>2</sub>, r<sub>3</sub> = notogastral setae.



**Fig. 2.**

*Oxyamerus himalayensis* sp. nov. (Ventral view),  $an_1$ ,  $an_2$  = anal setae,  $ad_1$ ,  $ad_2$  = adanal setae,  $iad$  = adanal fissure,  $ag$  = aggenital seta,  $3a$  = epimeral seta;  $p_1$ ,  $p_2$ ,  $p_3$  = notogastral setae.

the rotten leaves of *Shorea robusta*, 170 m., 24.vii.1989 (*B. K. Mondal* coll.); paratype 1 adult (F), INDIA : W Bengal : Darjeeling, New Chumta Tea Estate (soil from loose humus), 128 m., 26.vii.1989 (*B. K. Mondal* coll.).

The new species is closely related to *Oxyamerus spathulatus* Aoki, 1965 in the appearance of notogastral, ventral and partly prodorsal characters. It also resembles with the Javanese species, *O. hyalinus* and *O. truncatus* Hammer, 1979 in the dark band on anterior border of notogaster. The new species however, differs from *spathulatus* by the nature of rostral setae, notogastral setae, rostrum, absence of exobothridial setae and presence of dark band on anterior border of notogaster. It also differs from both the Javanese species by the nature of dark band at the anterior border of notogaster, notogastral setae, rostrum, rostral setae and absence of exobothridial setae.

### ***Podopterotegaeus tectus* Aoki, 1969**

*Podopterotegaeus tectus* Aoki, 1969 : 132.

**Material examined** 1 adult (F), INDIA W Bengal Darjeeling, Lepchajagat forest block (from loose soil with litter under *Cryptomeria japonica* and *Quercus* sp.), 2000 m., 28.vii.1989 (*B. K. Mondal* coll.); 1 adult (F), INDIA W Bengal Darjeeling, Sonada forest block (from humus with loose litter), 2100 m., 5.ix.1989 (*B. G. Kundu* coll.).

**Remarks** : The Indian specimens accord well with the type species *Podopterotegaeus tectus* Aoki, 1969, except in having a slightly smaller body size.

### ***Microtegeus sabahnus* Mahunka, 1987**

*Microtegeus sabahnus* Mahunka, 1987 : 789.

**Material examined** 5 adult (F), INDIA W Bengal Darjeeling, Matigara Tea Estate (from decomposed leaves of *Camellia sinensis*), 117 m., 3.vii.1988 (*B. K. Mondal* coll.); 4 adult (F), INDIA W Bengal Darjeeling, Balasun Tea Estate (from compost heap), 600 m., 1.ix.1989 (*B. G. Kundu* coll.)

**Remarks** · The Indian specimens agree with *Microtegeus sabahnus* Mahunka, 1987 in all respects, but slightly greater in length and width than that of Malaysian species.

### ***Eupelops foveolatus* Engelbrecht, 1975**

*Eupelops foveolatus* Engelbrecht, 1975 : 89.

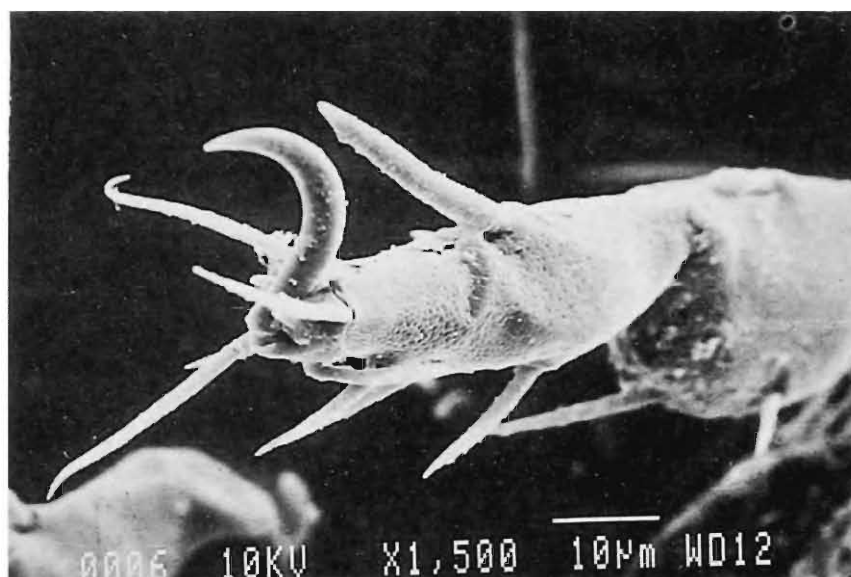
**Material examined** 2 adult (F), INDIA W Bengal Darjeeling, Makaibari Tea Estate (from litter of *Camellia sinensis*), 960 m., 18.viii.1988 (*B. K. Mondal* coll.); 1 adult



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**Figs. 3-5.** *Oxyamerus himalayensis* sp. nov. (Scanning Electron Micrographs) : 3. Ventral view, 4. Epimeral and genital regions on ventral side, 5. Leg-IV.



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Figs. 6-7. *Oxyamerus himalayensis* sp. nov. (Scanning Electron Micrographs) : 6. Genital plates and genital setae, 7. Anal plates and minute anal setae.

(F), INDIA : W. Bengal : Darjeeling, Lohagarh Tea Estate (from humus), 350 m., 7.ix.1989 (B. G. Kundu coll.).

*Remarks* : The Indian specimens resemble with *Eupelops foveolatus* Engelbrecht, 1975 in almost all the essential features except in having different nature of barbation of notogastral setae.

### ***Carabodes kusseri* Balogh et Balogh, 1983**

*Carabodes kusseri* Balogh et Balogh, 1983 : 307.

*Material examined* : 2 adult (F), INDIA : W. Bengal : Darjeeling, Merry view Tea Estate (from litter of *Camellia sinensis*), 117 m., 12.viii.1988 (B. K. Mondal coll.); 1 adult (F), INDIA : W. Bengal : Darjeeling, Sukna forest block (from decomposed leaves of *Shorea robusta*), 170 m., 4.ix.1989 (B. G. Kundu coll.).

*Remarks* : The Indian specimens are in conformity with *Carabodes kusseri* Balogh et Balogh, 1983 except for difference in slightly nature of sensillus.

### SUMMARY

This paper reports five species of soil oribatid mites (Acari) under five genera from forest and tea fields in the district of Darjeeling, West Bengal, India. Out of the five species one, viz., *Oxyamerus himalayensis* is new to science. The genera *Oxyamerus* and *Podopterotegaeus* and the remaining four species are reported here for the first time from India.

### ACKNOWLEDGEMENT

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