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A NEW CRYPTOSTIGMATID MITE (ACARI : ORIBATEI) AND A FEW NEW RECORDS OF CRYPTOSTIGMATID FAUNA FROM FOREST AND TEA SOILS IN JALPAIGURI DISTRICT, WEST BENGAL, INDIA

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INTRODUCTION

Jalpaiguri district is a virgin territory almost unexplored in the field of Oribatidology. But the topography, climatic conditions and vegetations of Jalpaiguri seemed to harbour an enriched faunal treasure of these soil microarthropods. A survey programme was therefore, undertaken to explore the soil oribatid fauna of forest and tea soils in the district of Jalpaiguri, West Bengal, India since April, 1996. Examination of a part of the collected specimens reveals the occurrence of a new species, *Parahypozetes orientalis* and eighteen known species distributed over nineteen genera under fifteen families.

All the species listed here are new records for Jalpaiguri district. The genus *Parahypozetes* is reported here for the first time from India.

The types of the new species and the specimens 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(μm).

Parahypozetes Hammer, 1967

1967. *Parahypozetes* Hammer, *Biol. Skr. Dan. Vid. Selsk.*, **15** (4) : 10.

The genus *Parahypozetes* was established by Hammer (1967) with *Parahypozetes grandis* as the type-species from New Zealand. She (*op. cit.*) also contributed 7 other new species from the same continent. While creating this genus, Hammer (1967) only mentioned that the new genus *Parahypozetes* belongs to the superfamily Ceratozetoidea. Balogh (1972) in his catalogue " The Oribatid Genera of the World", however, placed the genus *Parahypozetes* under the family Ceratozetidae Jacot, 1925 of the superfamily Ceratozetoidea as well as under the family Achipteriidae Thor, 1929 of the superfamily Oribatelloidea. Balogh and Balogh (1983) created 3 more new species, *lobatus, bidactylus* and *breviseta* under the genus *Parahypozetes* from Australia. Thus from the above account, 11 species are known under the genus *Parahypozetes*, of which Hammer alone reported 8 species. The genus *Parahypozetes*

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is being reported here for the first time from India with the description of a new species, *Parahypozetes orientalis*.

Parahypozetes orientalis sp. nov.

(Figs. 1-5)

Female Colour dark brown; length of the body 588-600; width of the body 365-373.

Prodorsum more or less twice broader than long; rostrum conical; rostral setae outwardly barbed, bent inward with pointed tips, inserted rather far posteriorly on the lateral sides of rostrum, 88-91 long; lamellae very long, longer than prodorsum and covered most of the prodorsum; cuspids broadly rounded, leaf-like, anterior portion of the interior borders more or less touching each other; middle portion of the lamellae fused with each other to form synlamellata, lamellae with cuspids, 240-243 long; lamellar setae smooth, with incurved pointed tips, extended beyond the tip of cuspid and rostral setae, 80-85 long, inserted at the anterior border of the cuspis, basal 2/3rd covered by cuspis; interlamellar setae, smooth, very long, 140-143 in length, inserted at the base of the prodorsum close to the lamellae and extended beyond the tip of the rostrum, 2 times longer than their mutual distance; bothridium cup-shaped, 30-32 long; sensillus with a basal stalk and fusiform aciculated head, 88-92 long, directed anteriorad.

Notogaster with prominently arched dorsosejugal suture, finely and densely punctate; pteromorphae well-developed with lateral and downward directed angle, immovable, with a long, acute, projecting appendage, lateral border with radiating stripes; notogastral setae 10 pairs, smooth, 14-48 long; setae *ta* situated inner side of the pteromorph, a little postero-lateral to the bothridium; setae *te* located far postero-lateral to setae *ta* on pteromorph; setae *ti* situated in between the two, on the inner side of notogaster; distance *ti-ti* < distance *ta-ta* < distance *te-te*; setae *ti, ms*, r_3 remain more or less in a row on the lateral side of notogaster, setae r_1, p_1, p_2 and p_3 postero-marginal, setae *ms* being the longest, p_1 the shortest; sacculi (*Sa*) distinct and located at the antero-lateral side of the insertion of *ti* setae on notogaster; fissure *im* also distinct and situated a little below the postero-lateral side of the insertion of *ti* setae on notogaster.

Surface of the ventral plate finely and densely punctate; each anal plate more or less twice as long as broad, 2 glabrous, nearly equal setae, with pointed tips, 28-32 long; setae an_1 inserted postero-medial and an_2 located antero-medial part of the anal plate; adanal setae 3 pairs, smooth, with pointed tips, 26-28 long; setae ad_1 postero-medial, ad_2 medio-lateral and ad_3 a little below the antero-lateral to the anal field; distance ad_2-ad_2 = ad_3-ad_3 > distance ad_1-ad_1, *iad* small, elongated, close to the antero-lateral border of the anal plate; distance between anal and genital apertures 2 times as long as the latter; each genital plate less than twice as long as its maximum width, 6 simple setae, with pointed tips, 40-48 long, 2 of which situated

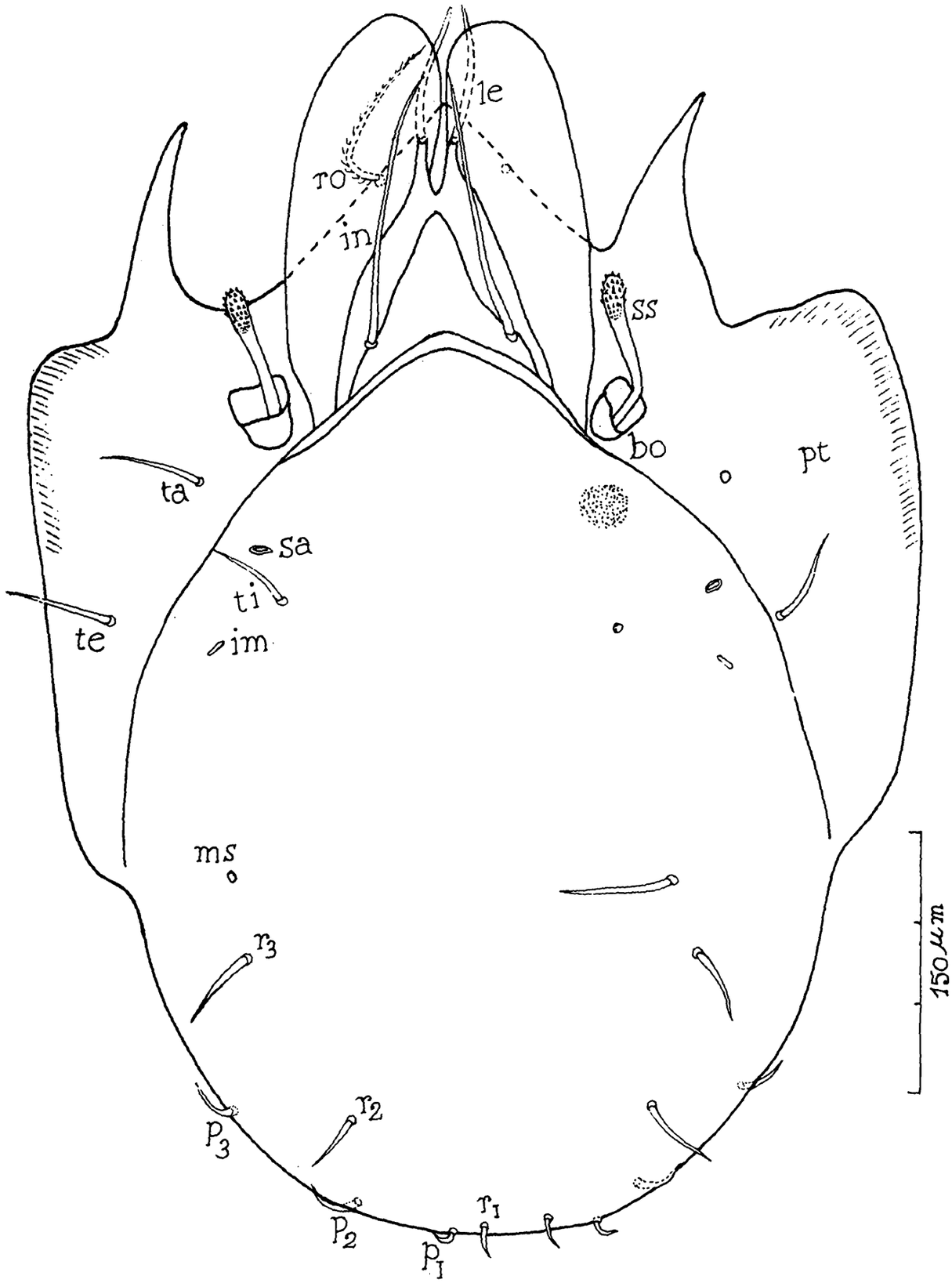

Fig. 1. *Parahypozetes orientalis* sp. nov. (Dorsal view), *ro* = rostral seta, *le* = lamellar seta, *in* = interlamellar seta, *bo* = bothridium, *ss* = sensillus, *pt* = pteromorph; *ta*, *te*, *ti*, *ms*, r_1, r_2, r_3, p_1, p_2, p_3 = notogastral setae, *sa* = sacculi, *im* =dorsal lyrifissure.

in transverse antero-marginal rows and remaining 4 situated medially from anterior to posterior end to the genital plate; aggenital setae one pair (only follicles found, simple in paratypes), their mutual distance nearly twice the maximum width of the genital plates.

The apodemata sejugalis (apo_{sj}) located far behind the anterior border of the genital plate; epimera I and II distinctly separated, epimera III and IV fused; epimeral setae simple, 20-48 long, setae *4a* being longest and *4b* being shortest; epimeral setal formula 1-1-1-2.

All tarsi tridactylous; claws curved, middle one strongest and much stronger than lateral ones.

Holotype Adult (F), INDIA W Bengal Jalpaiguri District, Kalchini Tea Estate (from loose soil with humus, litter and rotten leaves of *Camellia sinensis*), 2.vi.1996 (*B. K. Mondal* coll.); paratype 1 adult (F), INDIA W Bengal Jalpaiguri District, Karala Valley Tea Estate (from litter of *Camellia sinensis*), 28.iv.1996 (*B. K. Mondal* coll.); paratype 1 adult (F), INDIA W Bengal Jalpaiguri District, Jalpaiguri forest Div., Moraghat range, Moraghat block (from loose humus under *Terminalia arjuna*), 16.viii.1996 (*B. G. Kundu* coll.); paratype 1 adult (F), INDIA W Bengal Jalpaiguri District, Jalpaiguri forest Div., Chalsa range, North Indong block (from soil under *Dalbergia sissoo*), 29.vii.1996 (*B. K. Mondal* coll.).

8 *Parahypozetes* species of New Zealand and 2 species, *viz.*, *breviseta* and *bidactylus* of Australia do not possess true rounded cuspis. Broadly rounded cuspis found only in *Parahypozetes lobatus* Balogh and Balogh (1983). The new species *Parahypozetes orientalis* also conforms with *P. lobatus* Balogh and Balogh, 1983 in the nature of broadly rounded cuspis and the type of sensillus. It however, differs mainly from *lobatus* Balogh and Balogh (1983) in the very long size of interlameller setae and in the arrangement of genital setae, but from all the established species by the nature of pteromorph.

In the genus *Parahypozetes*, the authors came across with 2 species having same name, *viz.*, *P. lobatus*, one established by Hammer in the year 1967 from New Zealand and another by Balogh and Balogh, 1983 from Australia. However, the two species of the same name from different continents characteristically differ from each other mainly in the prodorsal region and especially in the nature of lamellae and length of interlamellar setae. Therefore, they shoud be treated as separate species. So, for the law of priority, the species name *P. lobatus* of Balogh and Balogh, 1983 should be changed.

Hoplophthiracarus tropicus Mondal and Kundu, 1988

1988. *Hoplophthiracarus tropicus* Mondal and Kundu, *Rec. zool. Surv. India*, **85** (1) : 112.

Material examined : 2 adult (F), INDIA W Bengal Jalpaiguri District, Raja Tea Estate (from loose litter of *Camellia sinensis*), 29.iv.1996 (*B. K. Mondal* coll.) , 1 adult (F), INDIA W Bengal Jalpaiguri District, Banarhat Tea Estate (from soil under a tea plant, *Camellia sinensis*), 18. viii.1996 (*B. G. Kundu* coll.).

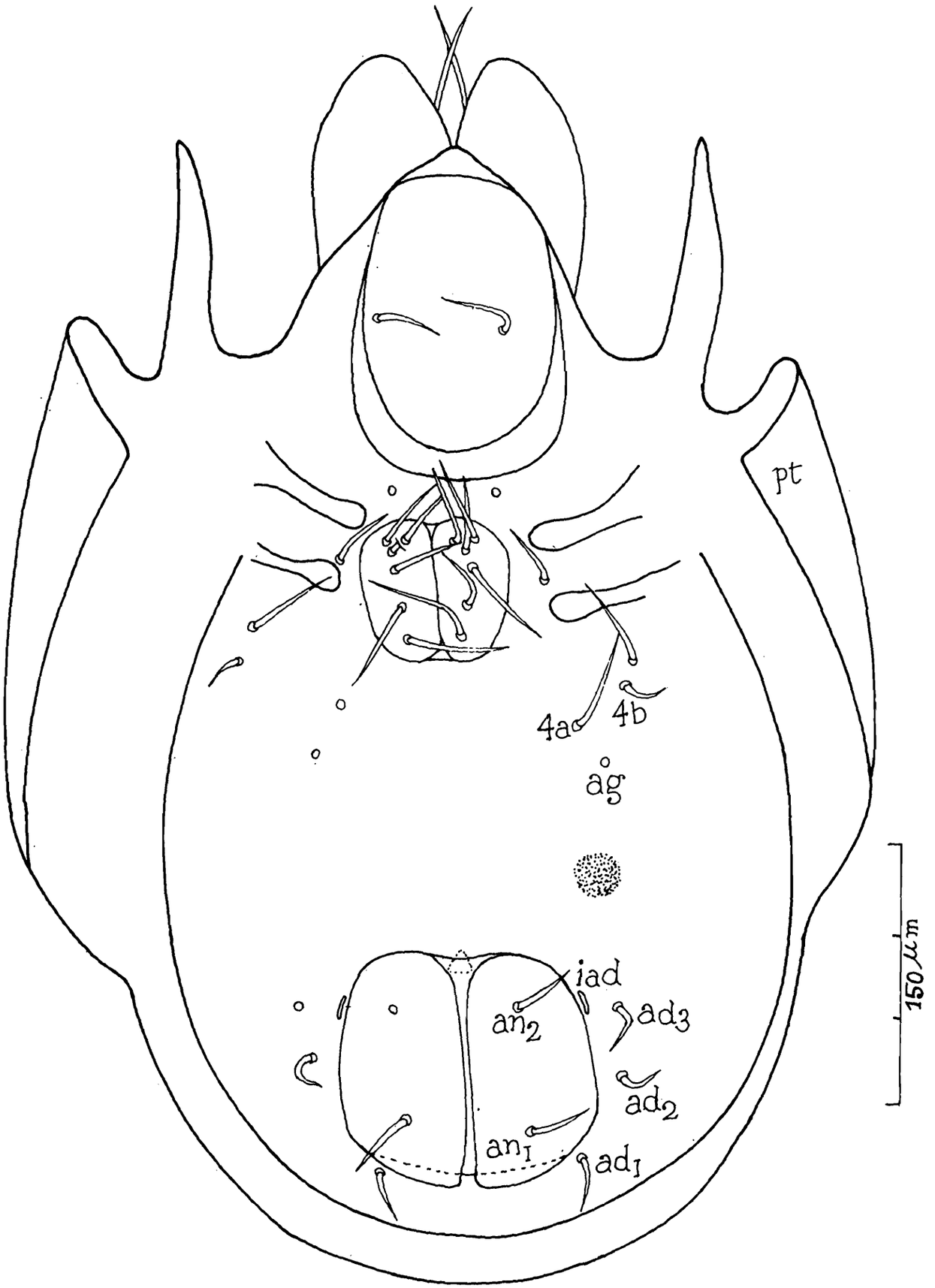

Fig. 2. *Parahypozetes orientalis* sp. nov. (Ventral view), an_1, an_2 = anal setae, ad_1, ad_2, ad_3 = adanal setae, *iad* = adanal fissure, *ag* = aggenital seta, *4a*, *4b* = epimeral setae, *pt* = pteromorph.

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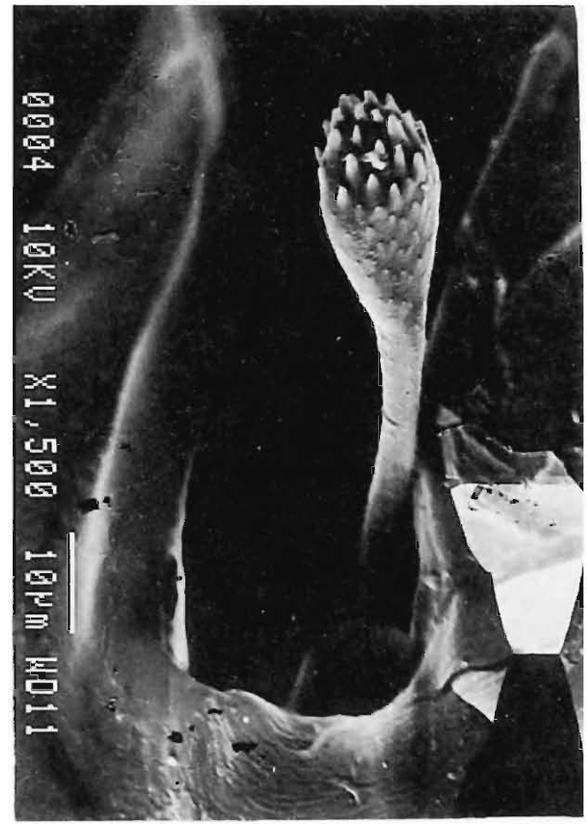

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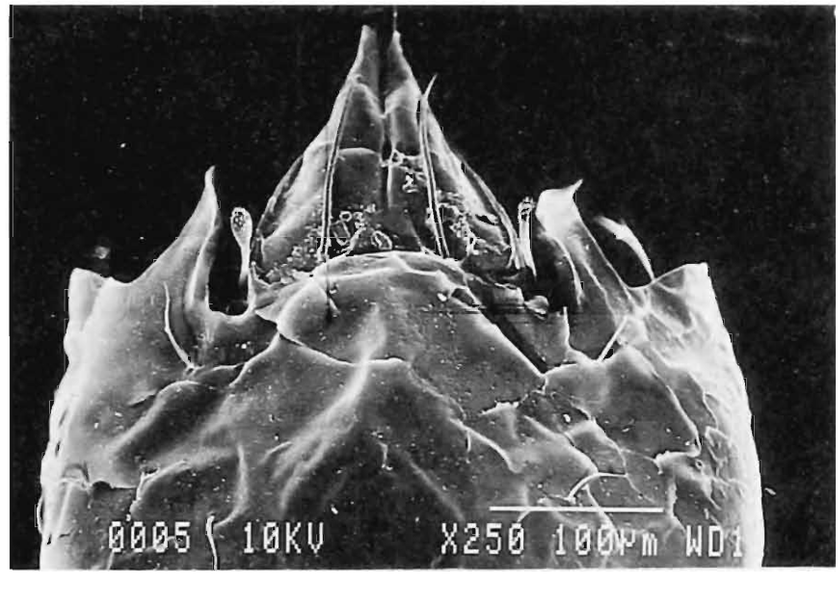

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Figs. 3-5. *Parahypozetes orientalis* sp. nov. (Scanning Electron Micrographs) : 3. Dorsal view, 4. Sensillus, 5. Details of prodorsum and anterior portion of notogaster.

Haplacarus foliatus Wallwork, 1962

1962. *Haplacarus foliatus* Wallwork, *Acarologia*, **4** (3) : 466.

Material examined: 1 adult (F), INDIA W Bengal Jalpaiguri District, Jainti Tea Estate (from loose soil under *Camellia sinensis*), 21.vii.1996 (*B. K. Mondal* coll.).

Nanhermannia thaiensis Aoki, 1965

1965. *Nanhermannia thaiensis* Aoki, *Nat. Life Southeast Asia*, **4** : 149.

Material examined 1 adult (F), INDIA W Bengal Jalpaiguri District, CoochBehar Tea Estate (from decomposed leaves of *Camellia sinensis*), 9.vi.1996 (*B. K. Mondal* coll.); 1 adult (F), INDIA W Bengal Jalpaiguri District, Jalpaiguri forest Div., Dalgaon range, Dalgaon block (from loose soil with litter under *Tectona grandis*), 17.viii.1996 (*B. G. Kundu* coll.).

Masthermannia mamillaris Berlese, 1913

1913. *Masthermannia mamillaris* Berlese, *Redia*, **9** : 100.

Material examined 1 adult (F), INDIA W Bengal Jalpaiguri District, Birpara Tea Garden (from humus), 23.vi.1996 (*B. K. Mondal* coll.).

Phyllhermannia berlesei Mondal, 1984

1984. *Phyllhermannia berlesei* Mondal, *Rec. zool. Surv. India*, **81** (3 & 4) : 175.

Material examined: 3 adult (F), INDIA W Bengal Jalpaiguri District, Jalpaiguri forest Div., Lataguri range, Sursuti block (from soil with litter under *Acacia auriculiformis*), 4.viii.1996 (*B. K. Mondal* coll.); 2 adult (F), INDIA W Bengal Jalpaiguri District, Jalpaiguri forest Div., Moraghat range, North Moraghat block (from soil under *Swietenia mahogoni*), 16.viii.1996 (*B.G. Kundu* coll.).

Metabelba obtusa Hammer, 1966

1966. *Metabelba obtusa* Hammer, *Biol. Skr. Dan. Vid. Selsk.*, **15** (2) : 45.

Material examined 1 adult (F), INDIA W Bengal Jalpaiguri District, Indong Tea Estate (from litter of *Camellia sinensis*), 1.v.1996 (*B. K. Mondal* coll.); 1 adult (F), INDIA W Bengal Jalpaiguri District, Banarhat Tea Estate (from decaying leaves of *Camellia sinensis*), 18.viii.1996 (*B. G. Kundu* coll.).

Microtegeus reticulatus Aoki, 1965

1965. *Microtegeus reticulatus* Aoki, *Nat. Life Southeast Asia*, **4** : 156.

Material examined: 2 adult (F), INDIA W Bengal Jalpaiguri District, Jalpaiguri forest Div., Nathua range, Jaldacha block (from decomposed leaves of *Melia azedarach*), 15.viii.1996 (*B. K. Mondal* coll.).

Heterobelba rostrata Mondal and Kundu, 1984

1984. *Heterobelba rostrata* Mondal and Kundu, *Bull. zool. Surv. India*, **6** (1-3) : 223.

Material examined 3 adult (F), INDIA W Bengal Jalpaiguri District, Atiabari Tea Estate (from litter of *Camellia sinensis*), 12.v.1996 (*B. K. Mondal* coll.); 1 adult (F), INDIA : W Bengal Jalpaiguri District, Binaguri Tea Estate (from humus), 16.viii. 1996 (*B. G. Kundu* coll.).

Leobodes mirabilis Aoki, 1965

1965. *Leobodes mirabilis* Aoki, Nat. *Life Southeast Asia*, **4** : 167.

Material examined: 1 adult (F), INDIA W Bengal Jalpaiguri District, Jalpaiguri forest Div., Ramsai range, Lower Tundu block (from soil under *Anthocephalus cadamba*), 18.viii.1996 (*B. K. Mondal* coll.).

Oppia cryptomeriae Mondal and Kundu, 1985

1985. *Oppia cryptomeriae* Mondal and Kundu, *Bull. zool. Surv. India*, **7** (2-3) : 305.

Material examined: 1 adult (F), INDIA W Bengal Jalpaiguri District, Jalpaiguri forest Div., Dalgaon range, Dalgaon block (from soil under *Tectona grandis*), 11.viii.1996 (*B. K. Mondal* coll.); 1 adult (F), INDIA W Bengal Jalpaiguri District, Jalpaiguri forest Div., Banarhat range, Rethi block (from soil under *Eucalyptus globulus*), 18.viii.1996 (*B. G. Kundu* coll.).

Flagrosuctobelba flabella Mondal, 1984

1984. *Flagrosuctobelba flabella* Mondal, *Rec. zool. Surv. India*, **81** (3 & 4) : 153.

Material examined 1 adult (F), INDIA W Bengal Jalpaiguri District, Binaguri Tea Estate (from compost heap), 28.v.1996 (*B. K. Mondal* coll.).

Zygoribatula tortilis Hammer, 1977

1977. *Zygoribatula tortilis* Hammer, *Biol. Skr. Dan. Vid. Selsk.*, **21** (4) : 35.

Material examined: 2 adult (F), INDIA W Bengal Jalpaiguri District, Jalpaiguri forest Div., Banarhat range, Rethi block (from decomposed leaves of *Albizia lebbeck*), 25.viii.1996 (*B. K. Mondal* coll.).

Scheloribates huancayensis Hammer, 1961

1961. *Scheloribates huancayensis* Hammer, *Biol. Skr. Dan. Vid. Selsk.*, **13** (1) : 94.

Material examined · 2 adult (F), INDIA W Bengal Jalpaiguri District, Patkapara Tea Estate (from rotten leaves of *Camellia sinensis*), 16.vi.1996 (*B. K. Mondal* coll.); 1 adult (F), INDIA W Bengal Jalpaiguri District, Birpara Tea Garden (from humus), 15.viii.1996 (*B. G. Kundu* coll.); 1 adult (F), INDIA W Bengal Jalpaiguri District, Gairkhata Tea Estate (from compost heap), 14.vii.1996, (*B. K. Mondal* coll.).

Peloribates intermedius Mondal, 1984

1984. *Peloribates intermedius* Mondal, *Rec. zool. Surv. India*, **81** (3&4) : 156.

Material examined 4 adult (F), INDIA W Bengal Jalpaiguri District, Karala Valley Tea Estate (from soil under a tea plant, *Camellia sinensis*), 28.iv.1996 (*B. K. Mondal* coll.).

Rostrozetes ovulum (Berlese, 1908)

1908. *Tachyoribates ovulum* Berlese, *Redia*, **5** : 3.

1925. *Rostrozetes foveolatus* Sellnick, *Suppl. Ent., Berlin*, **11** : 85.

1989. *Rostrozetes ovulum* (Berlese, 1908) : Norton and Kethley, *Redia*, **72** (2) : 472.

Material examined: 3 adult (F), INDIA : W Bengal Jalpaiguri District, Jalpaiguri forest Div., Lataguri range, Sursuti block (from decomposed leaves of *Alstonia scholaris*), 4.viii.1996 (*B. K. Mondal* coll.); 2 adult (F), INDIA W Bengal Jalpaiguri District, Jalpaiguri forest Div. Nathua range, Jaldacha block (from loose soil under *Terminalia chebula*), 17.viii.1996 (*B. G. Kundu* coll.); 1 adult (F), INDIA W Bengal · Jalpaiguri District, Jainti Tea Estate (from litter of *Camellia sinensis*), 21.vii.1996 (*B. K. Mondal* coll.).

Ceratozetes gracilis (Michael, 1884)

1884. *Oribata gracilis* Michael, *Ray. Soc.*, **61** : 225.

1928. *Ceratozetes gracilis* (Michael, 1884) : Sellnick, *Tierw. Mitteleur. Leipzig.*, **3** (4/9) : 13.

Material examined 2 adult (F), INDIA W Bengal Jalpaiguri District, Kalchini Tea Estate (from soil with rotten leaves of *Camellia sinensis*), 2.vi.1996 (*B. K. Mondal* coll.); 1 adult (F), INDIA W Bengal Jalpaiguri District, Birpara Tea Garden (from humus), 15.viii.1996 (*B. G. Kundu* coll.).

Lamellobates palustris Hammer 1958

1958. *Lamellobates palustris* Hammer, *Biol. Skr. Dan. Vid. Selsk.*, **10** (1) : 100.

Material examined 2 adult (F), INDIA W Bengal Jalpaiguri District, Atiabari Tea Estate (from decaying leaves of *Camellia sinensis*), 12.v.1996 (*B. K. Mondal* coll.); 2 adult

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Oribatella meridionalis Berlese, 1908

1908. *Oribatella meridionalis* Berlese, *Redia*, **5** : 5.

Material examined: 1 adult (F),INDIA W Bengal : Jalpaiguri District, Jalpaiguri forest Div., Lataguri range, Sursuti block (from decomposed leaves of *Ricinus communis*), 4.viii.1996 (*B. K. Mondal* coll.).

SUMMARY

This paper deals with nineteen species of soil oribatid fauna (Acari) distributed over nineteen genera under fifteen families. Out of the nineteen species one new species, *viz.*, *Parahypozetes orientalis* is described here. All the other eighteen species mentioned here are first time reported from Jalpaiguri district. The genus *Parahypozetes* is recorded here for the first time from India.

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