Rec. zool. Surv. India, **81** (3 & 4) : 153-161, 1984

TWO NEW ORIBATID MITES (ACARI) FROM INDIAN SOILS

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(With 4 Text-figures)

INTRODUCTION

As a result of investigations of the oribatid fauna from forests and tea estates of Darjeeling, the northernmost district of the state of West Bengal, India, two new species (*Flagrosuctobelba flabella* sp. nov. and *Peloribates intermedius* sp. nov.) were found. The genus *Flagrosuctobelba* was established by Hammer (1979) with *Flagrosuctobelba multiplumosa* as the type-species from Java. Berlese (1908) erected the genus *Peloribates* with *Oribata peloptoides* Berlese, 1888 as the type-species. The genus *Flagrosuctobelba* is being reported here for the first time from India where as the other genus, *Peloribates* is being recorded for the first time from West Bengal. All measurements are in microns.

Flagrosuctobelba flabella sp. nov.

(Text-figs. 1-2)

Female : Colour yellowish ; length of the body : 196-200 ; width of the body : 108-112.

Prodorsum longer than broad ; rostrum projects like a nose, with four lateral teeth on each side, the posterior teeth largest and sharpest of all ; rostral tip broadly angular ; rostral setae strongly elbowed, bushy and knob-like at the middle resembling a painter's brush, simple distally with pointed tips, inserted above the anterior most rostral teeth laterally, 21-24 long, about two and half times as long as their mutual distance ; tectopedial fields large ; lamellae well developed ; lamellar knob large, with a large interior aperture ; lamellar setae discernible by their follicles only, situated on lamellar knob ; interlamellar setae also not discernible, their insertions located on broad interpseudostigmatic ridges anteriorly, the mutual distance of their follicles four times longer than that of the follicles of lamellar setae ; lamellar knob connected with the interpseudostigmatic ridges by a thin ridge ; bothridium depressed, rounded, posteriorly with a lobe ; sensillus flagellate,

with a slender, smooth stalk, distal three fourth moderately incrassate, densely ciliated exteriorly, 52-62 long, directed dorsomesad.

Notogaster rounded, nearly as long as broad, anterior margin straight ; four notogastral teeth well developed, middle two broadly

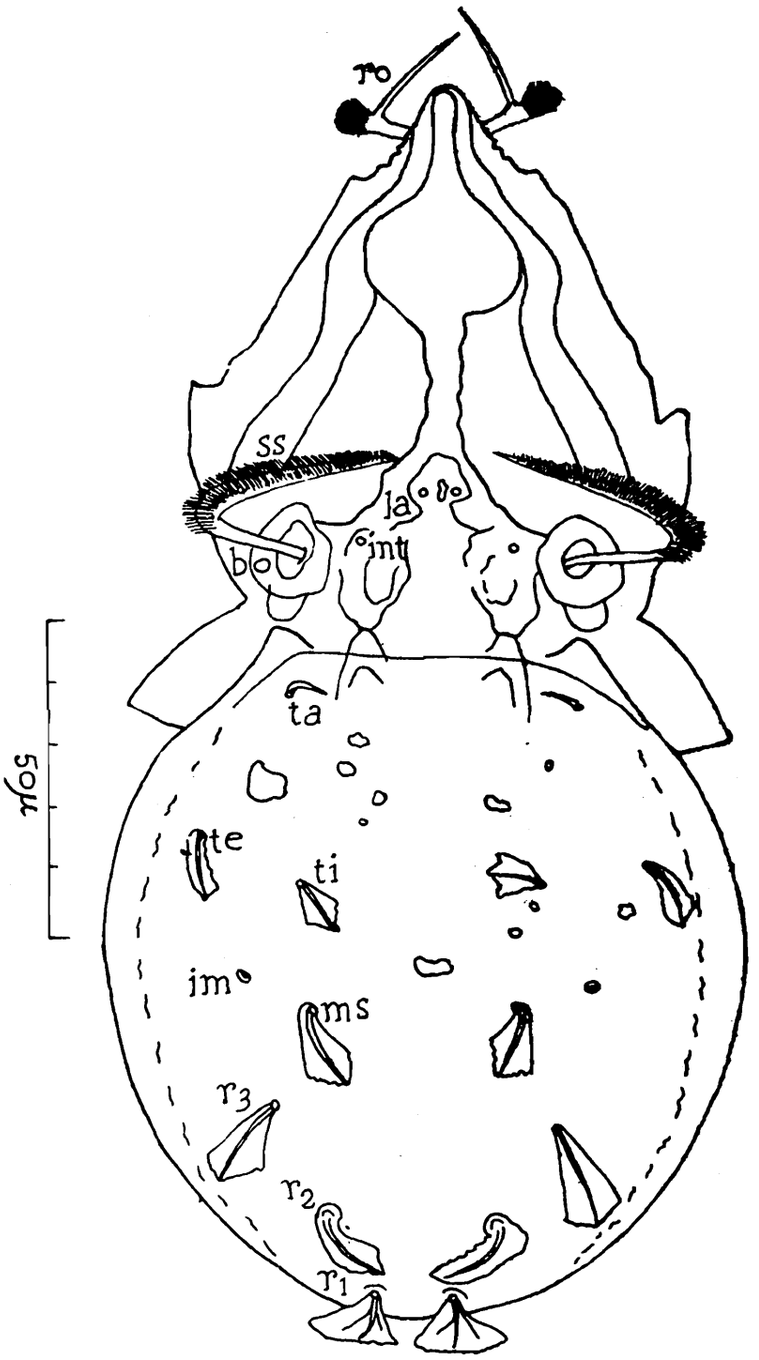

Fig. 1

Text-fig. 1. *Flagrosuctovelba flabella* sp. nov. (Dorsal view), *ro*=rostral seta, *la*=lamellar seta, *int*=interlamellar seta, *ss*=sensillus, *bo*=bothridium, *ta*, *te*, *ti*, *ms*, r_1, r_2, r_3=notogastral setae, *im*=dorsal fissure.

rounded, separated, touching anteriorly the interpseudostigmatic ridges, lateral two pointed, widely separated and extend below the posterior lobe of bothridium anteriorly ; notogastral setae nine pairs, heterotrichous, 5-20 long ; setae *ta* and p_2 smooth, simple and setiform, p_1 slightly thicker, *ti*, *te*, *ms*, r_1, r_2 and r_3 fan-shaped, with distinct midribs

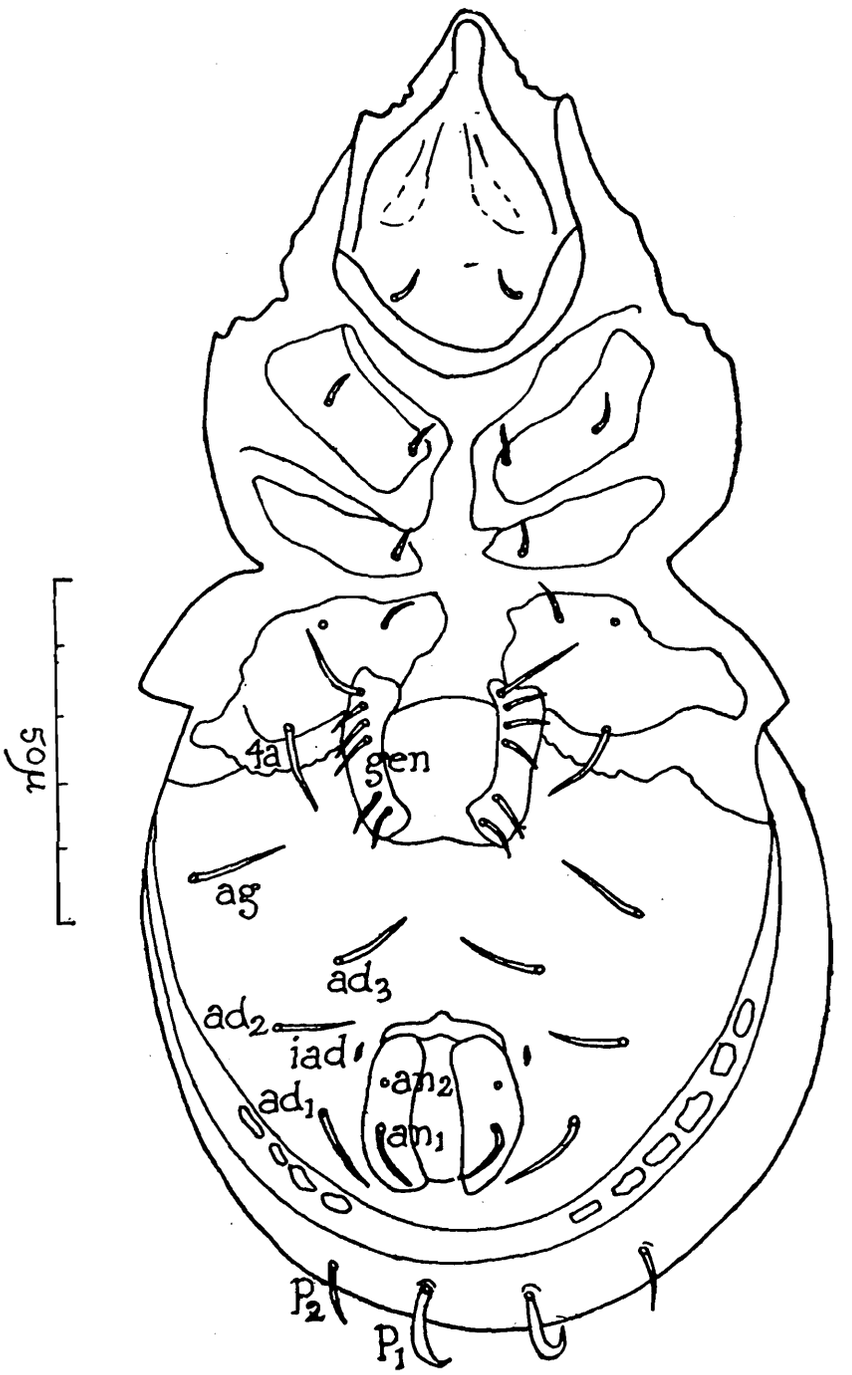

Fig. 2

Text-fig. 2. *Flagrosuctobelba flabella* sp. nov. (Ventral view), p_1, p_2 = notogastral setae, an_1, an_2 = anal setae, ad_1, ad_2, ad_3 = adanal setae, *iad* = adanal fissure, *gen* = genital plate, *ag* = aggenital seta, *4a* = epimeral seta.

and undulated anterior margins ; setae *ta* antero-lateral, *ti*, *ms* dorso-medial, *te* medio-lateral, r_3 postero-lateral, r_2 postero-medial and r_1, p_1 and p_2 postero-marginal ; distance between $ta-ta=r_3-r_3>ti-ti>ms-ms>r_2-r_2$.

Each anal plate about two and half times as long as broad, with two smooth, simple setae, 7-8 long, inserted medially ; adanal setae three pairs, smooth, simple, 7-12 long, setae ad_1 located at nearly middistance along the length of anal aperture, ad_2 at the anterior back and ad_3 infront of the anal aperture ; *iad* a small slit, aligned parallel to the lateral border of anal aperture anteriorly ; each genital plate nearly rectangular, about two and half times as long as broad, with six smooth, simple setae, 5-12 long, anterior most longer, others almost equal to each other ; aggenital setae smooth, simple, longer than adanal setae, 8-13 long, widely separated from each other, their mutual distance more than two and half times longer than the maximum width of the genital aperture ; mutual distances of aggenital and adanal setae : $ag-ag>ad_2-ad_2>ad_1-ad_1>ad_3-ad_3$; $ag-ag>2\ (ad_3-ad_3)$.

Epimera I and II separated, III and IV fused ; epimera IV with several protuberances posteromarginally ; epimeral setae smooth, simple, 5-12 long, setae *4a* longest ; epimeral setal formula 2-1-2-1.

Legs monodactylous, claws slightly curved.

Holotype : Adult ♀, INDIA : W. Bengal : Darjeeling, Darjeeling forest Div., Ghum-Simana forest range, Sukiapokhri forest block (from decomposed leaves of *Cryptomeria japonica*), 2100 m., 21.ix.1978 (*B. K. Mondal* Coll.) ; paratypes : 2 adult ♀ ♀, same data as for holotype ; paratype : 1 adult ♀, INDIA : W. Bengal : Darjeeling, Darjeeling forest Div., Tonglu forest range, Palmajua forest bunglow area (from rotten leaves of *Cryptomeria japonica*), 2300 m., 16.viii.1977 (*B. K. Mondal* Coll.) ; deposited in the laboratory of the Department of Zoology, Presidency College, Calcutta.

This new species has it's closest similarity with *Flagrosuctobelba multiplumosa* Hammer, 1979 but it can easily be separated from *multiplumosa* by possessing four rostral teeth, by the structure of rostral setae and medial pair of notogastral teeth, mostly fan-shaped notogastral setae, lesser number of epimeral setae.

Peloribates intermedius sp. nov.

(Text-figs. 3-4)

Female : Colour chestnut brown ; length of the body : 266-296 ; width of the body : 200-206.

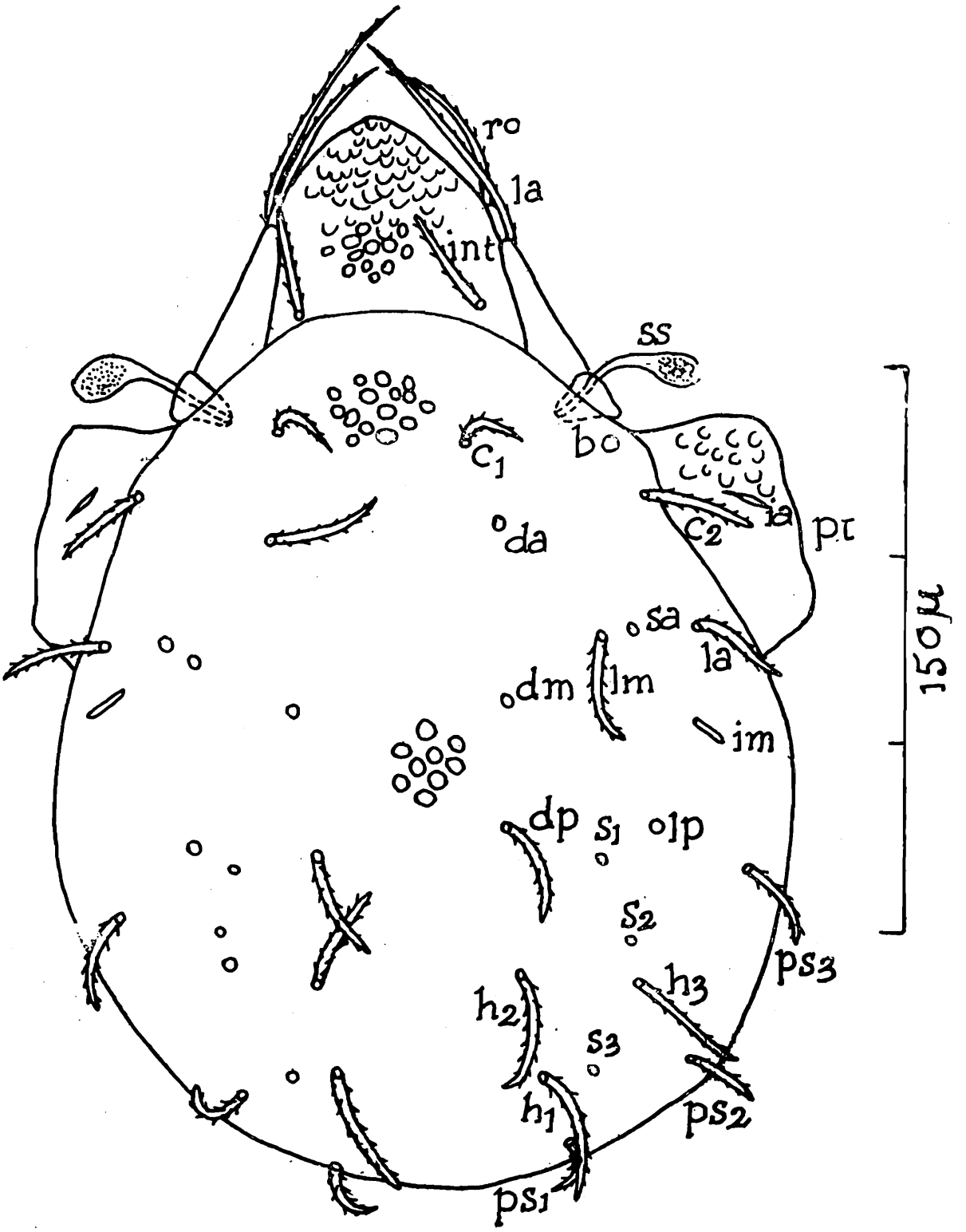

Fig. 3

Text-fig. 3. *Peloribates intermedius* sp. nov. (Dorsal view), *ro* = rostral seta, *la* = lamellar seta, *int* = interlamellar seta, *ss* = sensillus, *bo* = bothridium, *pt* = pteromorph, c_1, c_2, *da*, *la*, *dm*, *lm*, *dp*, *lp*, h_1, h_2, h_3, ps_1, ps_2, ps_3 = notogastral setae, *ia*, *im* = dorsal fissures, *Sa*, S_1, S_2, S_3 = sacculi on notogaster.

Prodorsum pitted ; rostrum broadly rounded ; rostral setae strongly incurved, almost meeting apically, unilaterally barbed outwards, situated laterally on either side of the rostrum infront of a sharp free

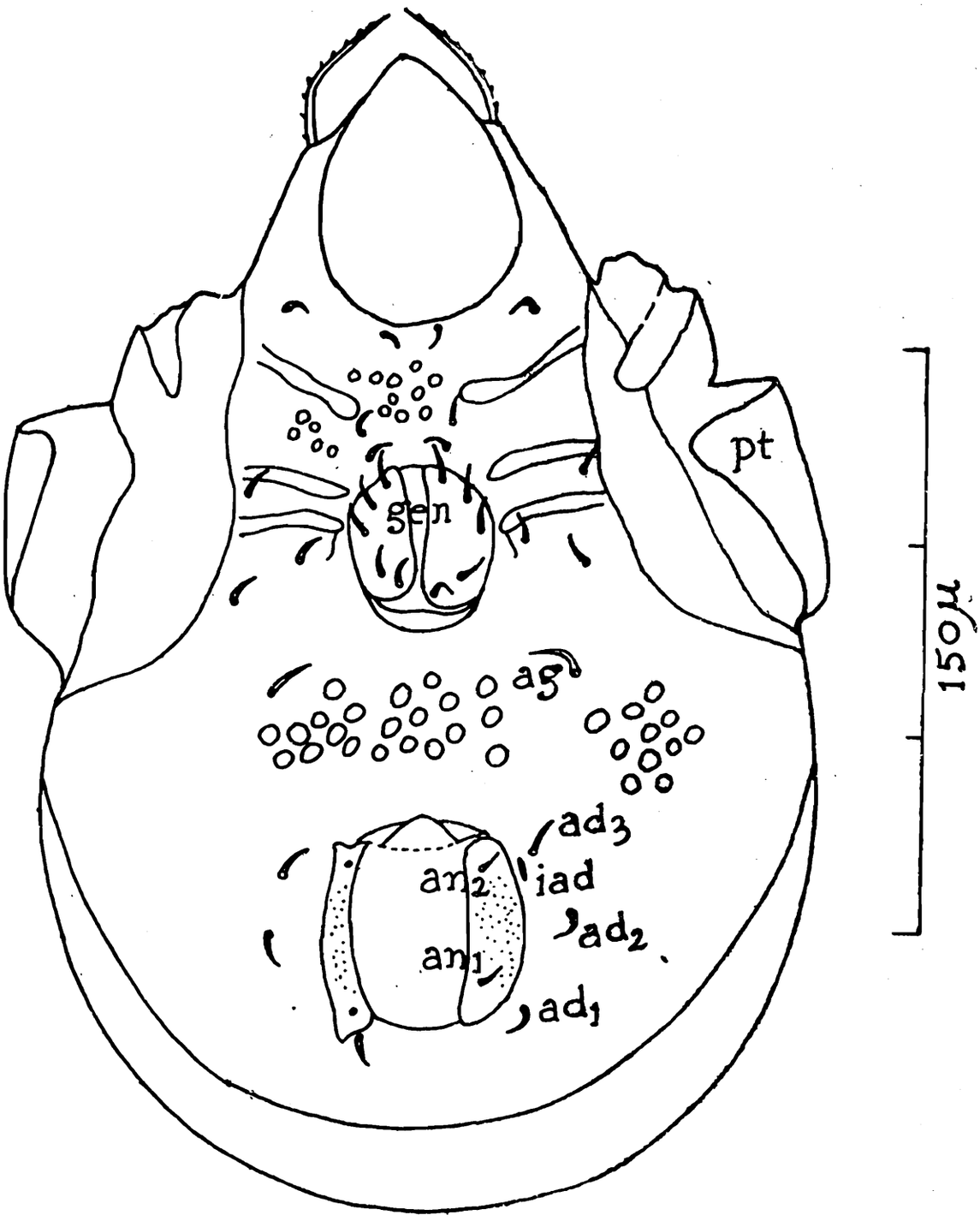

Fig. 4

Text-fig. 4. *Peloribates intermedius* sp. nov. (Ventral view), an_1, an_2 = anal setae, ad_1, ad_2, ad_3 = adanal setae, *iad* = adanal fissure, *gen* = genital plate, *ag* = aggenital seta, *pt* = pteromorph.

tip of the tutorium, 40-48 long, nearly as long as their mutual distance ; lamellar setae long, exceed far beyond the tip of rostrum, faintly barbed outwards, with very thin and pointed tip, originate laterally from the tip of lamellae, 59-66 long, nearly as long as their mutual distance ; interlamellar setae thick, erect, beset with minute bristles, located a little above the dorsosejugal suture, 29-37 long, nearly half as long as their mutual distance ; bothridium more or less conical, broadest distally, directed antero-laterad ; sensillus with a thin stalk and club-shaped head beset with pseudoscales, 35-38 long, directed postero-laterad ; lamella marginal, gradually attenuating anteriorad, about half as lons as prodorsum.

Notogaster somewhat oval in outline, longer than broad, covered with round, light pits ; dorsosejugal suture strongly arched anteriorly ; notogastral setae fourteen pairs, short, stiff, setose, 15-35 long ; setae c_1, *da* antero-dorsal, *dm*, *dp* mid-dorsal, h_1, h_2 postero-dorsal, *lm*, *lp*, h_3 dorso-lateral, c_2, *la* antero-marginal and ps_1, ps_2 and ps_3 postero-marginal ; distance $c_1 - c_1 = dp - dp < dm - dm < da - da$; distance $lm - lm = h_3 - h_3 < lp - lp$; setae $c_1 < c_2 < da$; setae *da*, *la*, *lm*, *dp* nearly equal, h_2, h_3 nearly equal, h_1 longer than either of these two ; ps_1, ps_2 nearly equal, ps_3 nearly one and half times as long as either of these two ; four pairs sacculi i.e., *Sa*, S_1, S_2, S_3 present, *Sa* adjacent to the insertion of *lm*, S_1 lateral to *dp*, S_2 above h_3 and S_3 lateral to h_1 ; two pairs of oblique notogastral fissures discernible, *ia* parallel to setae c_2 and *im* between *la* and *lp* ; pteromorphae short with light pits, nearly one fourth as long as the notogaster, about twice as long as broad, broadest anteriorly with slightly undulating lateral and concave anterior margin.

Ventral plate sculpture ; genital plates smooth, anal plates punctate, separated from each other by a distance slightly longer than the length of the genital plates ; each anal plate nearly as long as broad with two minute smooth setae, inserted at the anterior and posterior part of the anal plate in a para-axial row, 3-4 long, nearly equal ; adanal setae three pairs, nearly equal, 5-6 long ; ad_1 postero-lateral, ad_2 medio-lateral and ad_3 antero-lateral of the anal field ; *iad* minute, parallel, intimately adjacent to the lateral margin of anal field ; genital plate nearly twice as long as broad with five smooth, simple, minute setae, 4-6 long, of these two posteriorly and three anteriorly, closely approximated along the outer margin ; aggenital setae one pair, smooth, situated closer to genital than to anal plates, 7-9 long, their mutual distance nearly twice the maximum width of the combined genital plates.

All epimera pitted, sternal plate faintly chitinized ; apodemata II, apodemata sejugalis and apodemata III are narrow, bar-like, almost parallel ridges ; apodemata II with a median knot ; apodemata sejugalis and apodemata III clasping the anterior part of the genital aperture ; epimeral setae smooth, 4-6 long, all nearly equal in length ; epimeral setal formula 2-1-2-2.

All the tarsi tridactylous, the middle claw being thickest while the lateral ones half as thick as the middle one.

Holotype : Adult ♀, INDIA : W. Bengal : Darjeeling, Sukna Tea Estate (from rotten leaves of *Thea sinensis*), 135 m., 24.x.1978 (*B. K. Mondal* Coll.) ; paratypes : 5 adult ♀ ♀, data same as for holotype ; paratypes : 5 adult ♀ ♀, INDIA : W. Bengal : Darjeeling, Teesta Valley Tea Estate (from humus), 900 m., 23.x.1977 (*B. K. Mondal* Coll.) ; paratypes : 3 adult ♀ ♀, INDIA : W. Bengal : Darjeeling, Kalimpong forest Div., Neora forest range, Mal forest block (from decomposed leaves of *Dalbergia sissoo*), 200 m., 16.viii.1978 (*B. K. Mondal* Coll.) ; deposited in the laboratory of the Department of Zoology, Presidency College, Calcutta.

This species approaches close to one described species, *Peloribates rangiroaensis* Hammer, 1972 and one subspecies, *P. rangiroaensis asiaticus* Aoki et Nakatamari, 1974. It can however, be distinguished from the above mentioned species and subspecies by possessing pseudoscales on the head of the sensillus, shorter length of interlamellar setae and setae *lm* located in a level parallel to *la*. Besides the above characters, it can be separated from *rangiroaensis* by possessing unprotruded broadly rounded rostrum, by the presence of pits also at the terminal part of the rostrum, by the structure of lamellae, nature of interlamellar setae, shorter length of the setae c_2 and in having smaller in body size. It can again be easily distinguished from *P. rangiroaensis asiaticus* by the mutual distances of notogastral setae (viz., the distance $da-da$ is always somewhat longer than the remainder instead of c_1-c_1) and by the position of notogastral sacculi (viz., S_1 is located closer to *lp* than to *dp* and S_2 antero-lateral instead of antero-medial to h_3). Hence, it is considered as a new species.

SUMMARY

This paper deals with the description of two new species of oribatid mites, viz., *Flagrosuctobelba flabella* sp. nov. and *Peloribates intermedius* sp. nov., from forest and tea soils in the district of Darjeeling, India. The genus *Flagrosuctobelba* is reported here for the first time from India and the other genus, *Peloribates* is recorded for the first time from West Bengal.

ACKNOWLEDGEMENTS

I am indebted to Prof. S. K. Dasgupta, Head of the Department of Zoology, Presidency College, Calcutta for providing necessary facilities to work and to Dr. D. K. Chakrabarti, Asstt. Prof. of Zoology, Presidency College, Calcutta for his inimitable spirit of cooperation and guidance. My thanks are also due to Dr. B. K. Tikader, Director, Zoological Survey of India, Calcutta for providing laboratory facilities during the course of present work.

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