

campanulate, homogamous with all ligulate flowers, pedunculate, in terminal fascicled racemes or panicles; torus slightly depressed. Involucral bracts 6-15 x 2.5-4 mm, many-seriate, coriaceous, glabrous excepting a few hairs at the tip, obtusely acuminate; outer ones gradually shorter, ovate or ovate-lanceolate; inner ones longer, oblong-lanceolate. Flowers yellow, bisexual. Corolla tube 6-7 mm long, linear, sparsely pubescent at throat without; limb 6-7 x 2 mm, narrowly oblong, 5-toothed at apex, teeth $\pm 0.5 \times 0.3$ mm. Anthers ± 2.5 mm long, linear-oblong, connate; filaments ± 1 mm long, free, glabrous. Ovary $\pm 1.5 \times 0.9$ mm, linear-oblong, ribbed, truncate at both ends, glabrous; style ± 1 cm long, linear, glabrous except near the tip; stigma bifid, arms ± 1.7 mm long, simple. Pappus 8-10 mm long, dull-white, smooth, faintly heteromorphic with thick and finer capillaceous hairs. Achenes $\pm 5 \times 1$ mm, brown, linear-oblong, compressed, strongly 4-ribbed with 2 faint longitudinal nerves in between, smooth, glabrous. (Figs. 1-7).

The holotype *Chandrabose* 69015 (CAL) and isotypes *Chandrabose* 69015 (MH. Acc. Nos. 117706, 117707, 117708, 117709, 117710, 117711) were collected in Konalar, Anamalai, Coimbatore District, Tamil Nadu on 18-11-1980.

This interesting taxon obviously represents a member of the tribe Lactuceae (Syn.: Cichorieae), but we found it difficult to place our new species in the appropriate genus, as this perennial species exhibits: achenes longer, narrowed at both ends; and pappus of finer capillaceous smooth hairs intermixed with thick smooth hairs. F. G. Davies after examining the specimen remarked, "..... It does seem to be near *Sonchus*, and at present I would not be certain whether it belongs in this genus or not. There are some rather odd perennial *Sonchus* species and it may be a new one of these". We, however, treat it as a species of *Sonchus* L. as suggested by F. G. Davies of the Kew Herbarium.

This species grows on the grassy slopes at an altitude of about 2050 m. This species is named in honour of Dr. S. K. Jain, Director, Botanical Survey of India, Howrah for his contributions to the taxonomy of Indian plants.

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DESCRIPTION OF TWO NEW SPECIES AND ONE NEW RECORD OF CRYPTOSTIGMATID MITES (ACARI: ORIBATEI) FROM MAHARASHTRA, INDIA¹

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(With four text-figures)

INTRODUCTION

During the course of studies on the oribatid mite fauna of Maharashtra two new species

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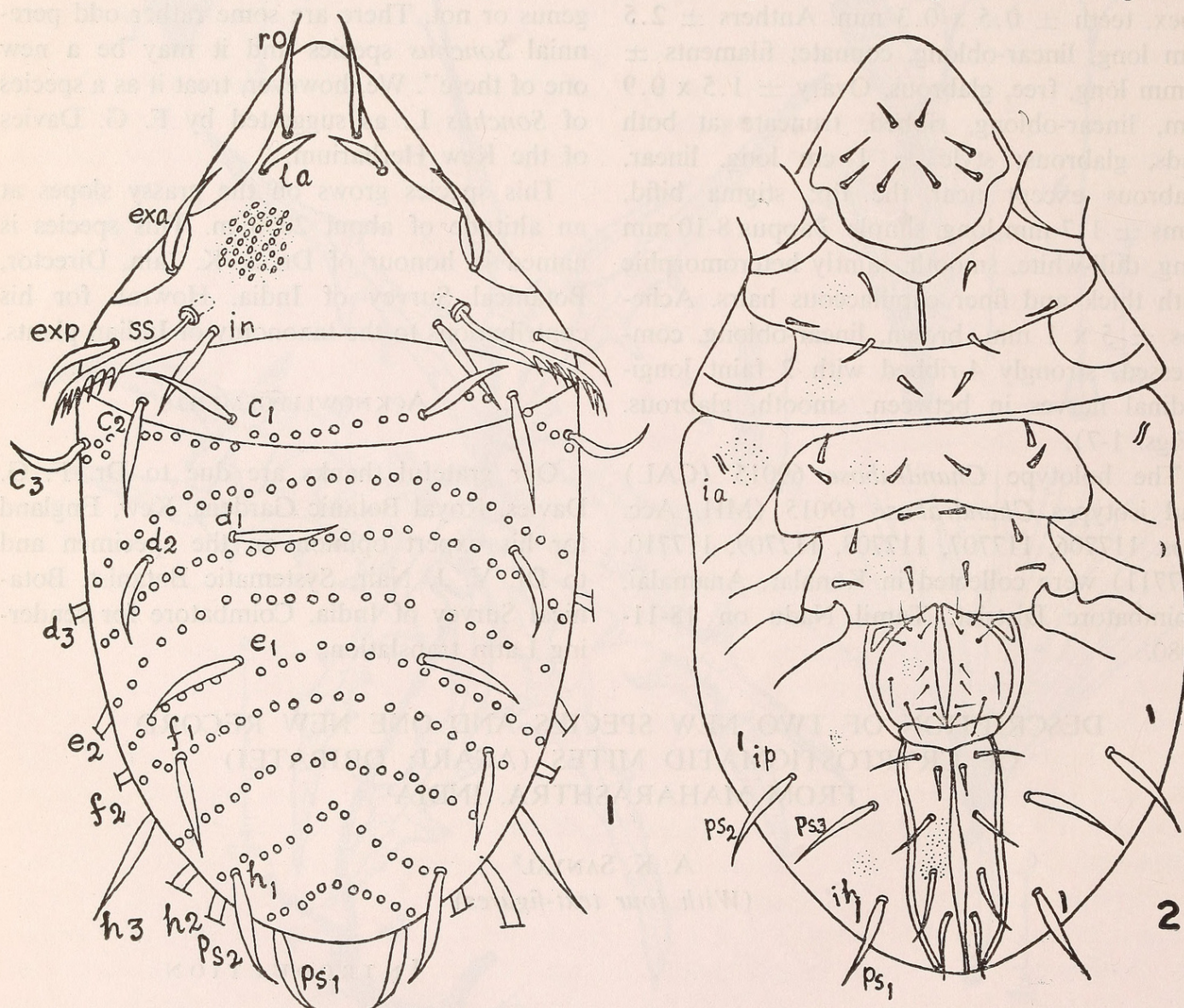
namely, *Haplacarus bhadurii* and *H. maharashtraensis* and one species namely *Javacarus kuhneli* as new for the state were recorded and are described in this paper. The specimens were collected by me and are deposited in the Zoological Survey of India, Calcutta.

Family LOHMANIIDAE
Haplacarus bhadurii sp. nov.

(Figs. 1-2)

Colour of the body and legs yellowish

brown; length of the body 667 μ , width 333 μ . The body is covered with a fine transparent cerotegument ornamented with a microsculpture of knob-like refractive papillae arranged in rows. These papillae are absent from the prodorsum, from the ventral plates and from dorsal surfaces of the legs. The integument beneath the cerotegument bears a fine microsculpture of regular punctations; this is clearly seen on parts of the body where the papillate microsculpture is lacking on the cerotegument.



Haplacarus bhadurii sp. nov. Fig. 1. Dorsum. Fig. 2. Venter.
(Length 667 μ)

Dorsal and ventral views of the holotype are given in Figs. 1 and 2.

Prodorsum: Prodorsum finely foveolated; rostral tectum is entire, not incised. Lateral margins of prodorsum have an angular contour. Rostral setae inserted close together on dorsal surface of rostrum, 2-3 times longer than their mutual distance. All prodorsal setae markedly foliate, smooth; rostral, lamellar, interlamellar and posterior exo-pseudostigmatic setae measure 69-86 μ long; anterior exo-pseudostigmatic setae slightly longer, measuring 103 μ . Sensillus pectinate with 7 branches. Slightly broad prodorsal transverse band posterior to the pseudostigmatic region.

Notogaster: Notogaster bears 9 rows of papillae, interpapillar region of notogaster covered by fine microsculpture of punctations. The arrangement of these papillae shows a striking resemblance to the description of *Javacarus kuhneli* Balogh, 1961. There are 32 notogastral setae, neotrichy absent, all setae markedly foliate and smooth. The setae measure 69-103 μ ; tips of the setae ps_1 strongly curved inwards.

Gnathosoma: Infracapitulum with 4 pairs of setae comprising a , m_1 , m_2 and h ; smooth, not markedly foliate.

Ventral region of podosoma: Coxisternal setal formula 3-1-3-4, setae smooth, not markedly foliate, arranged in usual manner as shown in Fig. 2.

Genito-anal region: Distinct aggenital plate, triangular, located at the anterolateral margins of the genital plates; genital plates undivided, no transverse suture, each with 10 setae comprising 4 antiaxial and 6 paraxial. Broadly rectangular pre-anal plate, much wider than long. Adanal-anal plates fused, no longitudinal suture, adanal-anal setal formula: 4-1, adanal setae slightly foliate, anal setae shorter and more slender than adanals; posterior adanal

seta longer and tips not curved inward; fissures ia , ip and ih seen on ventral view as narrow slits.

Leg: All tarsi monodactyle.

Holotype: Adult ♀ INDIA: Maharashtra, Buldana, Rajur, 8.i.1982, ex soil with decomposed leaves.

Paratype: 1 ♀ same data as for holotype.

Remarks: The new species is closely related to *Haplacarus foliatus* Wallwork, 1962 but strongly differs from it in the arrangement of the knob like papillae on notogaster, having sensilla with less number of branches, shorter in , micro-punctations and also in having straight tips of posterior adanal seta.

The species is named in honour of Dr. A. K. Bhaduri, an oribatologist.

***Haplacarus maharashtraensis* sp. nov.**

(Figs. 3-4)

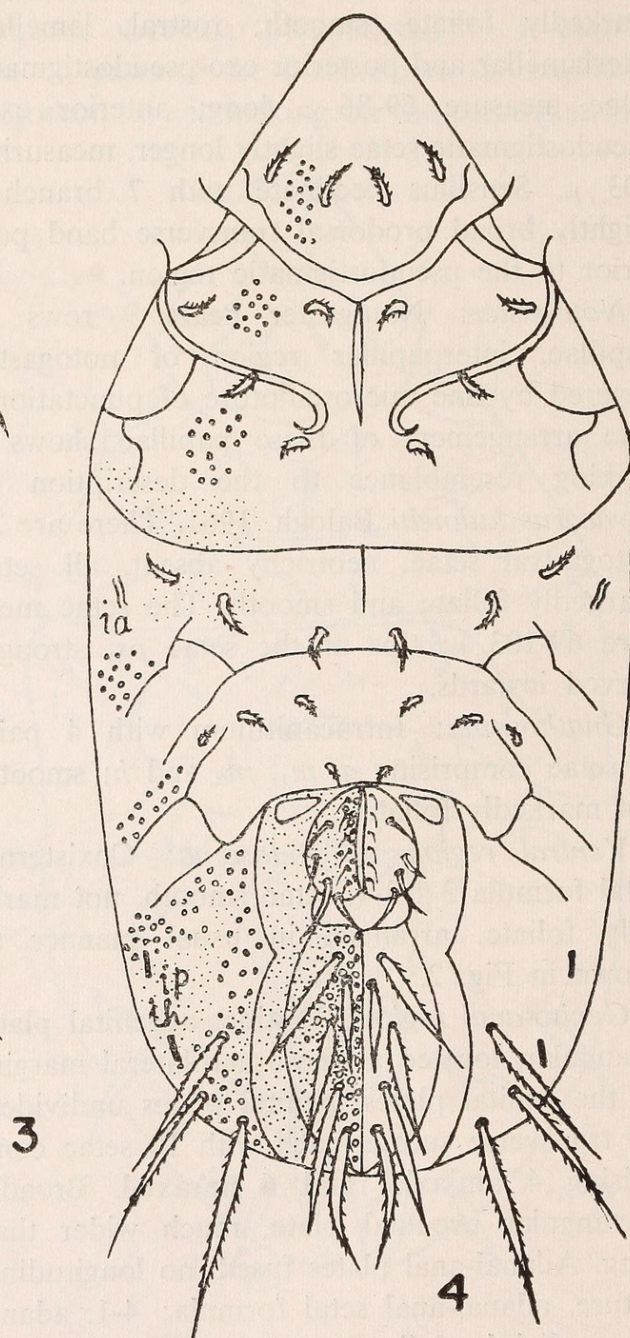
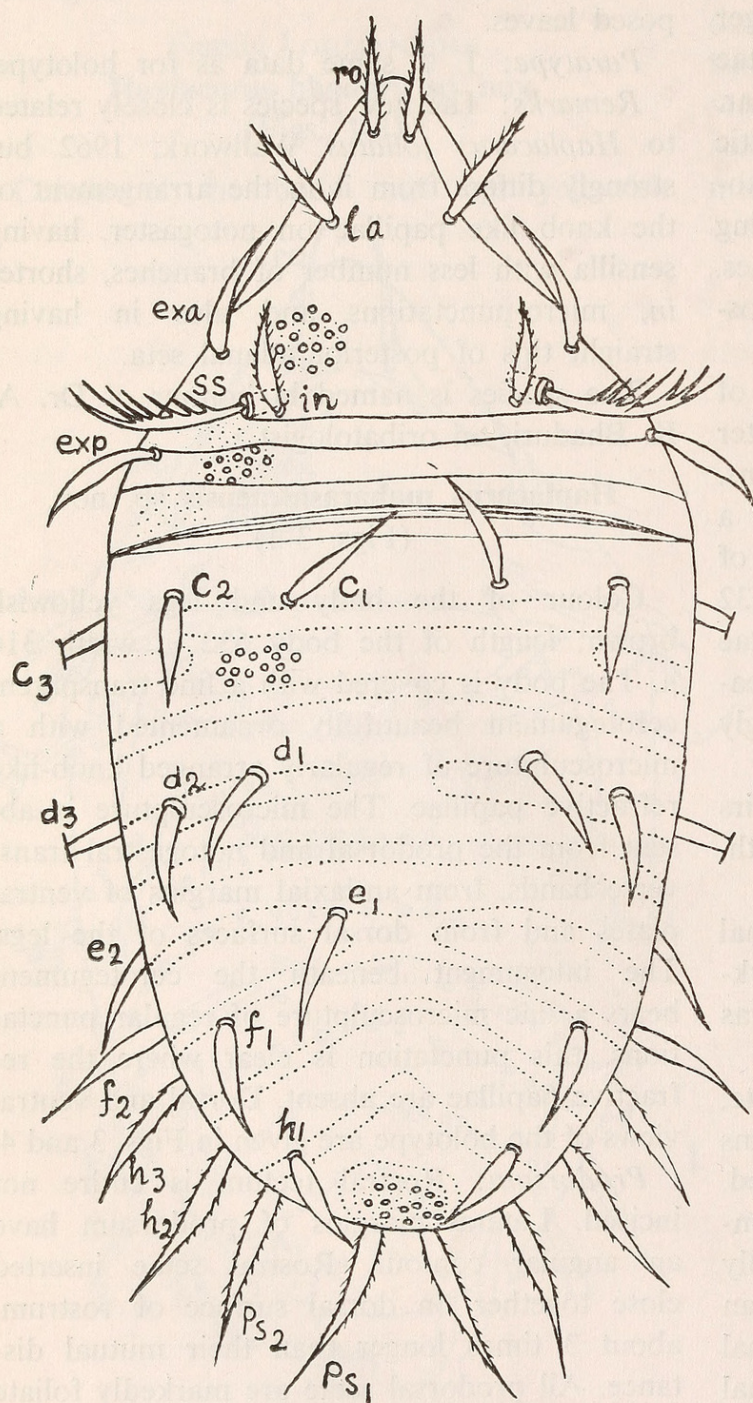
Colour of the body and legs yellowish brown; length of the body 632 μ , width 316 μ . The body is covered with a fine transparent cerotegument beautifully ornamented with a microsculpture of regularly arranged knob-like refractive papillae. The microsculpture is absent from the prodorsal and notogastral transverse bands, from antiaxial margins of ventral plates and from dorsal surfaces of the legs. The integument beneath the cerotegument bears a fine microsculpture of regular punctations, this punctation is clear where the refractive papillae are absent. Dorsal and ventral views of the holotype are given in Figs. 3 and 4.

Prodorsum: Rostral tectum is entire not incised. Lateral margins of prodorsum have an angular contour. Rostral setae inserted close together on dorsal surface of rostrum, about 3 times longer than their mutual distance. All prodorsal setae are markedly foliate and bear small barbs except anterior exo-pseudostigmatic and posterior exo-pseudostig-

matic setae; length of the prodorsal setae varies from 57-92 μ , sensillus is pectinate with 7 branches; broad prodorsal transverse band posterior to the pseudostigmatic region.

Notogaster: There are 32 notogastral setae; neotrichy absent; all setae markedly foliate,

h_2 , h_3 , ps_1 , ps_2 and ps_3 with fine barbs, other setae smooth. The setae measure 60-115 μ ; setae ps_1 rather thicker than the remaining. Notogaster bears 10 transverse bands, which are represented by clear bands of the cerotegument devoid of papillae.



Haplacarus maharashtraensis sp. nov. Fig. 3. Dorsum. Fig. 4. Venter.
(Length 632 μ)

NEW DESCRIPTIONS

Gnathosoma: Infracapitulum with 2 pairs of setae, short, not moderately foliate, finely barbed.

Ventral region of podosoma: Coxisternal setal formula: 3-1-3-4, finely barbed, not markedly foliate, arranged in usual manner as shown in Fig. 4.

Genito-anal region: Aggenital plates distinct, triangular, located at the anterolateral margins of the genital plates, genital plates undivided, no transverse suture, each with 10 setae comprising 4 antiaxial and 6 paraxial. Preanal plate rectangular, much wider than long. Adanal-anal plates fused, no longitudinal suture, adanal-anal setal formula: 4-1, adanal setae long, finely barbed; anal setae more slender and shorter than adanals; posterior adanal setae longer and with strongly incurved tip; fissures *ia*, *ip*, and *ih* seen on ventral view as narrow slits.

Leg: All tarsi monodactyle.

Holotype: Adult ♀, INDIA: Maharashtra, Buldana, Rajur, 8.i.1982, ex soil with decomposed leaves.

Paratype: 1 ♀, same data as for holotype.

Remarks: The species is closely related to *Haplacarus foliatus* Wallwork, 1962 but differs sharply in the presence of barbed setae on notogaster and ventral plate, sensilla with less number of branches, difference in the shape of the notogastral bands and 2 pairs of barbed setae on infracapitulum.

KEY TO THE INDIAN SPECIES OF *Haplacarus*

1. Notogastral papillae arranged in rows; all setae smooth; posterior adanal setae without incurved tips *bhadurii* sp. nov.
- Notogastral papillae regularly distributed and form distinct bands; setae smooth or barbed; posterior adanal setae with strongly curved inward tips 2
2. Setae barbed *maharashtraensis* sp. nov.
- Setae smooth *foliatus bengalensis* Bhattacharya *et al.*

Javacarus kuhnelti Balogh

Javacarus kuhnelti Balogh, 1961, *Acta. Zool. Acad. Sci. Hungarici*, 7: 19-44.

Javacarus kuhnelti, Bhattacharya *et al.*, 1974, *Oriental Ins.*, 8(3): 286.

Javacarus kuhnelti, Mishra *et al.*, 1980, *Sci. & Cult.*, 46: 225.

Material examined: 3 adult ♀ ♀, INDIA: Maharashtra, Buldana, Gondhankhera, 10.i.1982, ex soil with decomposed leaves.

Remarks: The material from Maharashtra agrees with the drawings and descriptions of *Javacarus kuhnelti* Balogh, 1961 except in the length of the body which is slightly larger in the present specimens.

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