

## A NEW SPECIES AND NEW RECORDS OF SIX SOIL MESOSTIGMATID (ACARINA) MITES FROM CALCUTTA

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### INTRODUCTION

*Polyaspis* (Berlese, 1881) is a uropodid genus of the family Polyaspidae whose members are commonly encountered in soil. So far 10 species of *Polyaspis* mites are known from the world. Of these, only one species, viz., *Polyaspis (Adyscritaspis) bengalensis* Pramanik and Raychaudhuri, 1978 is known from Indian soil. The present new species, *Polyaspis (Polyaspis) calcuttaensis* is described here as the second species from this subcontinent.

Subgenus *Adyscritaspis* was erected by Pramanik and Raychaudhuri (1978) based on the presence of free genital and metasternal shield and metasternal setae placed on ventral membrane. However, the characters of subgenus *Adyscritaspis* was originally described as the character of subgenus *Polyaspis* Berlese, 1881. Therefore, the subgenus *Adyscritaspis* should be treated as a junior synonym of subgenus *Polyaspis*.

Besides the description of the above species, the present paper deals with the first record of the male of *Polyaspis (Polyaspis) bengalensis* alongwith records of five other species of mesostigmatid mites from Calcutta.

The type materials and other specimens are deposited in the National Zoological Collection of Zoological Survey of India, Calcutta. All measurements in the text are expressed in micrometer ( $\mu\text{m}$ ).

*Polyaspis (Polyaspis) calcuttaensis* sp. nov.

(Figs. 1-6)

**Female** : Body elongated, oval, sides of anterior margin slightly depressed. Dorsum 361.9 long, 230.3 wide, pale brown, distinctly ornamented and irregularly striated. Dorsal shield divided into anterior and posterior shields with a gap in between them (fig. 1); anterior dorsal shield several times larger and wider (282 long, 164.5 wide) than posterior dorsal shield (42.3 long, 91.7 wide), covering most of the dorsum, with 14 pairs of setae; marginal and lateral setae leaf-like, placed on isolated platelets (fig. 2); except J2 and J3 all other dorsal setae peg-like. A pair of peg-like setae present in between two dorsal shields, the tip of the setae extends upto anterior margin

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of posterior dorsal shield; posterior dorsal shield roughly triangular in shape with honeycomb like ornamentation and punctation and bearing no seta.

Tritosternum tripartite, tritosternal base triangular, wider than longer (fig. 3); sternal shield incomplete posteriorly and fused with endopodal shield; st1 and st2 of equal length, placed on sternal shield; st3 on antero-lateral margin of genital shield; pseudosternal setae, st4 and st5 at level of coxae III and IV. Genital shield oval, raised into crescentic hood-like structure anteriorly, metapodal shield rectangular, with two pairs of setae, one pair peg-like, other leaf-like; 5 pairs of setae present on soft cuticle, 1 pair situated at level of metapodal and other 4 pairs placed around anal shield. Ventri-anal shield broad, granulated and partly striated; with two pairs of setae excluding a pair of par- and a post-anal setae; anal aperture large. Stigma lies between coxae III and IV; peritrematal shield not distinct.

Gnathosoma with 4 pairs of setae. Movable digit of chelicera bidentate; fixed digit with a row of irregular teeth arranged along its cutting edge (fig. 4). Leg I without ambulacrum; tarsus of leg I as in fig. 5.

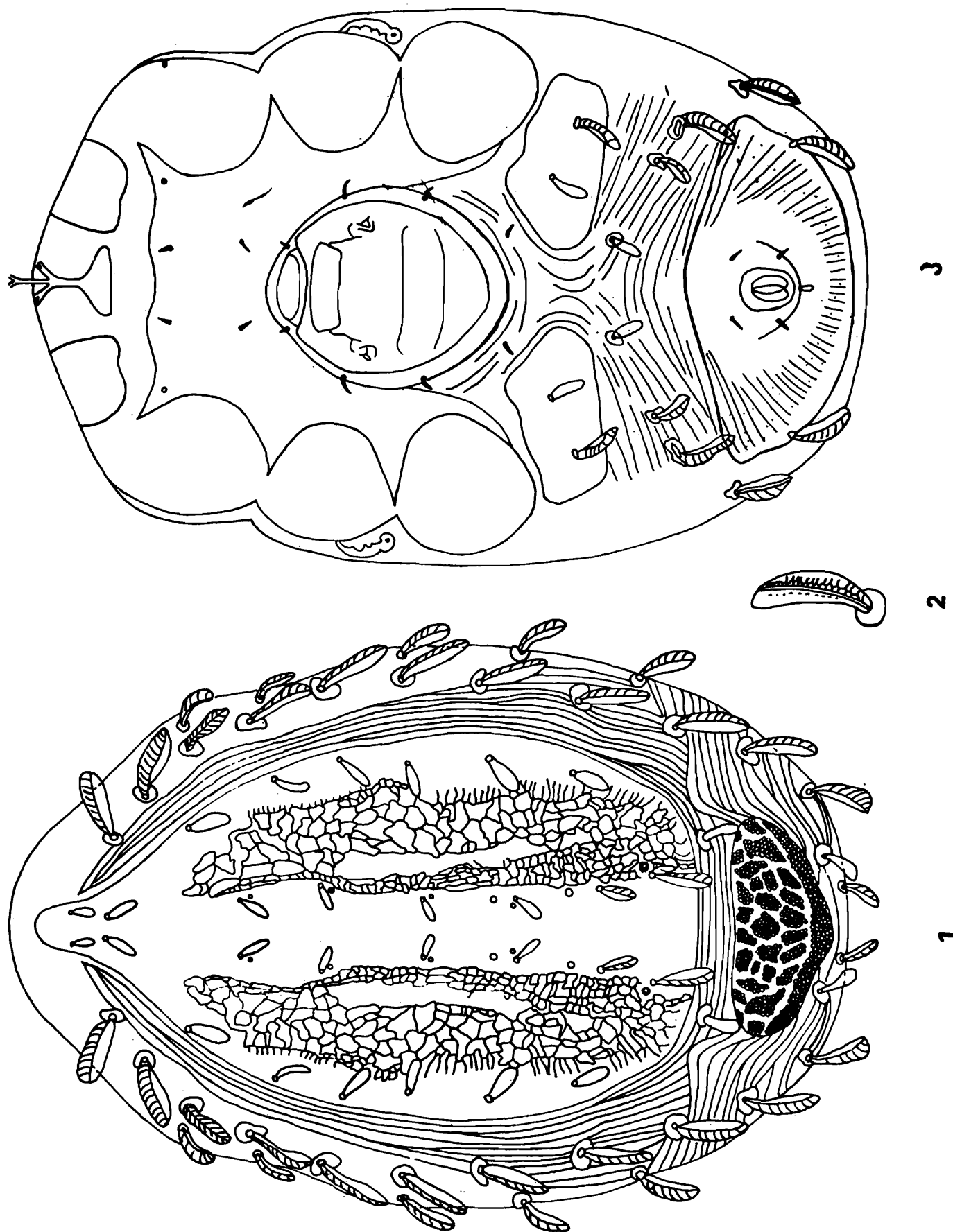
*Male* : Body elongated, oval as in female; dorsum collectively 491.1 long, 305.5 wide, pale brown, rough, irregularly striated, highly ornamented; anterior and posterior dorsal shield with a gap in between them; anterior dorsal shield 243 long and 223.2 wide with 14 pairs of setae; marginal and lateral setae leaf-shaped, placed on isolated platelets, excepting two pairs other dorsal setae peg-like, a pair of setae present between two dorsal shields extending upto anterior margin of posterior dorsal shield; posterior dorsal shield roughly triangular (915.7 long, 115.1 wide), with punctations and ornamentations.

Tritosternal base broader and half circular with bifid laciniae. Five pairs of sternal setae present. Genital orifice placed on sternal plate between coxae III and IV. Holoventral shield granular in appearance with 3 pairs of leaf-like, 3 pairs of peg-like and two pairs of simple setae excluding a pair of par- and post-anal setae. Anus present on a semilunar depression; no distinct peritrematal shield, stigma lies between coxae III and IV (fig. 6).

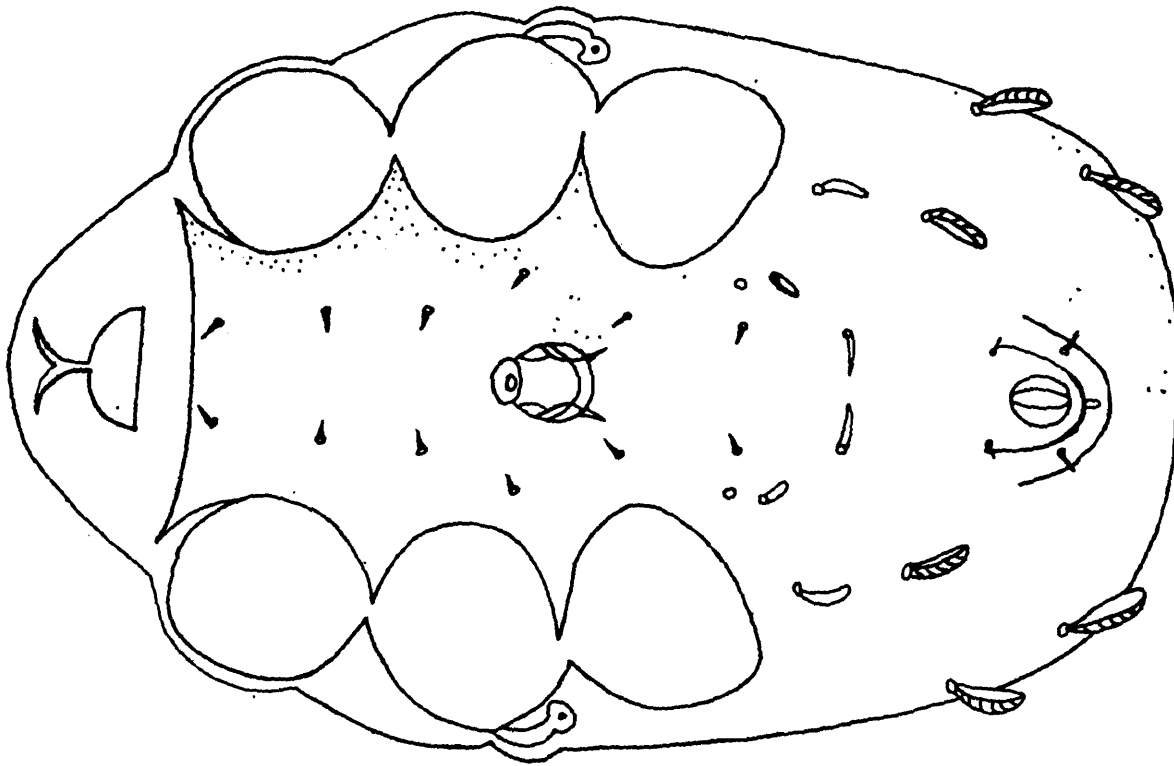
Gnathosoma with usual 4 pairs of hypostomatic setae. Cheliceral and leg structure same as in female.

*Material examined* : *Holotype* : ♀, India : West Bengal : Calcutta, Elgin Road; 25.iii.1992; ex. soil under Wax flower (*Ervatamia divaricata*) plant ; coll. Sharmistha Sarkar. *Paratypes* : 5 ♀♀, 2 ♂♂ including allotype, data same as for holotype.

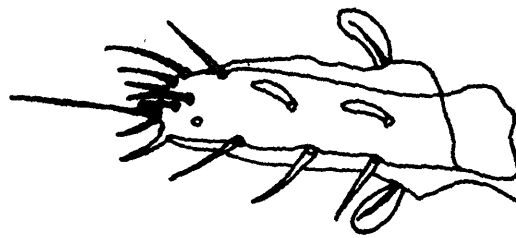
*Remarks* : *Polyaspis (Polyaspis) calcuttaensis* sp. nov. closely resembles *Polyaspis (Polyaspis) bengalensis* Pramanik and Raychaudhuri, 1978 in shape and position of metapodal shield, position of setae st1, st3, st4 and number of ventral setae in female. However, the present species can easily be differentiated from *bengalensis* in regards to shape of tritosternum in male, presence of gap in between two dorsal shields with a pair of setae, shape of genital and ventri-anal shields in female, number of dentition in movable digit of chelicera and position of st2 in female.



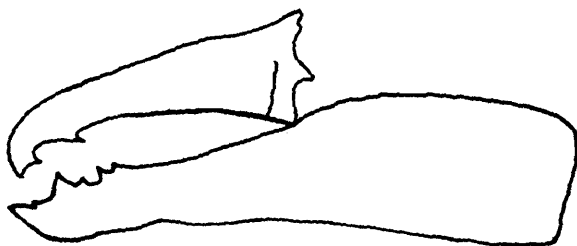
**Figs. 1-3.** : *Polyaspis (Polyaspis) calcuttaensis* sp. nov., female  
1. Dorsum; 2. Marginal setae; 3. Venter.



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**Figs. 4-5. :** *Polyaspis (Polyaspis) calcuttaensis* sp. nov., female  
4. Chelicera; 5. Leg I.

**Fig. 6. :** *Polyaspis (Polyaspis) calcuttaensis* sp. nov., male  
6. Venter.

## RECORDS OF SIX SPECIES AS NEW TO CALCUTTA

*Polyaspis (Polyaspis) bengalensis* Pramanik and Raychaudhuri  
(Figs. 7-10)

1978. *Polyaspis (Polyaspis) bengalensis* Pramanik and Raychaudhuri, *Soil Biology and Ecology in India*, UAS Tech. Series No. 22 : 143.

*Male* : Body elongated, oval. Dorsum 470 long and 315.2 wide, highly ornamented. Dorsal shield divided into anterior and posterior shields; anterior dorsal shield large covering most of dorsum, with 15 pairs of peg-like setae; posterior dorsal shield triangular, without any seta and anterior margin attaining posterior margin of anterior dorsal shield (fig. 7); marginal and lateral setae leaf-like placed on isolated platelets.

Tritosternum with broad triangular basal part and trifid laciniae (fig. 8). Sternal setae 5 pairs. Genital orifice placed on sternal shield, at level in between coxae III and IV. Holoventral shield granular and with 7 pairs of simple and 7 pairs of leaf-like setae excluding a pair of par- and post-anal setae. Anus present on a semilunar depression; no distinct peritrematal shield, stigma lies at posterior level of coxa III.

Gnathosoma with usual 4 pairs of setae. Movable digit of chelicera unidentate (fig. 9). Leg-I without ambulacrum (fig. 10).

*Material examined* : 3 ♂♂ and 6 ♀♀, India : West Bengal : Calcutta, Bhowanipur; 24.iii.1992; ex. soil under Wood apple (*Aegle marmelos*) tree ; coll. Sabyasachi Sarkar.

*Remarks* : *Polyaspis (Adyscritaspis) bengalensis* was described by Pramanik and Raychaudhuri, 1978 as new to science on the basis of female specimens collected from 24-Parganas, West Bengal. The nine specimens studied here conform with the original description of *Polyaspis (Adyscritaspis) bengalensis* (Pramanik and Raychaudhuri, 1978). Thus the male of the specimen is recorded here for the first time, but subgenus *Adyscritaspis* should be treated as a junior synonym of subgenus *Polyaspis*, so the specimens must be treated as type of *Polyaspis (Polyaspis) bengalensis*.

*Hypoaspis vacua* (Michael, 1891)

1891. *Laelaps vacuus* (Michael), *Proc. zool. Soc. Lond.*, 651.

1966. *Hypoaspis vacua* (Michael) : Evans and Till, *Bull. Brit. Mus. (nat. Hist.) Zool.*, 14 : 190.

*Material examined* : 1 ♂, India : West Bengal : Calcutta, Elgin Road; 1.vii.1992; ex. soil under Wax flower (*Ervatamia divaricata*) plant ; coll. Sharmistha Sarkar.

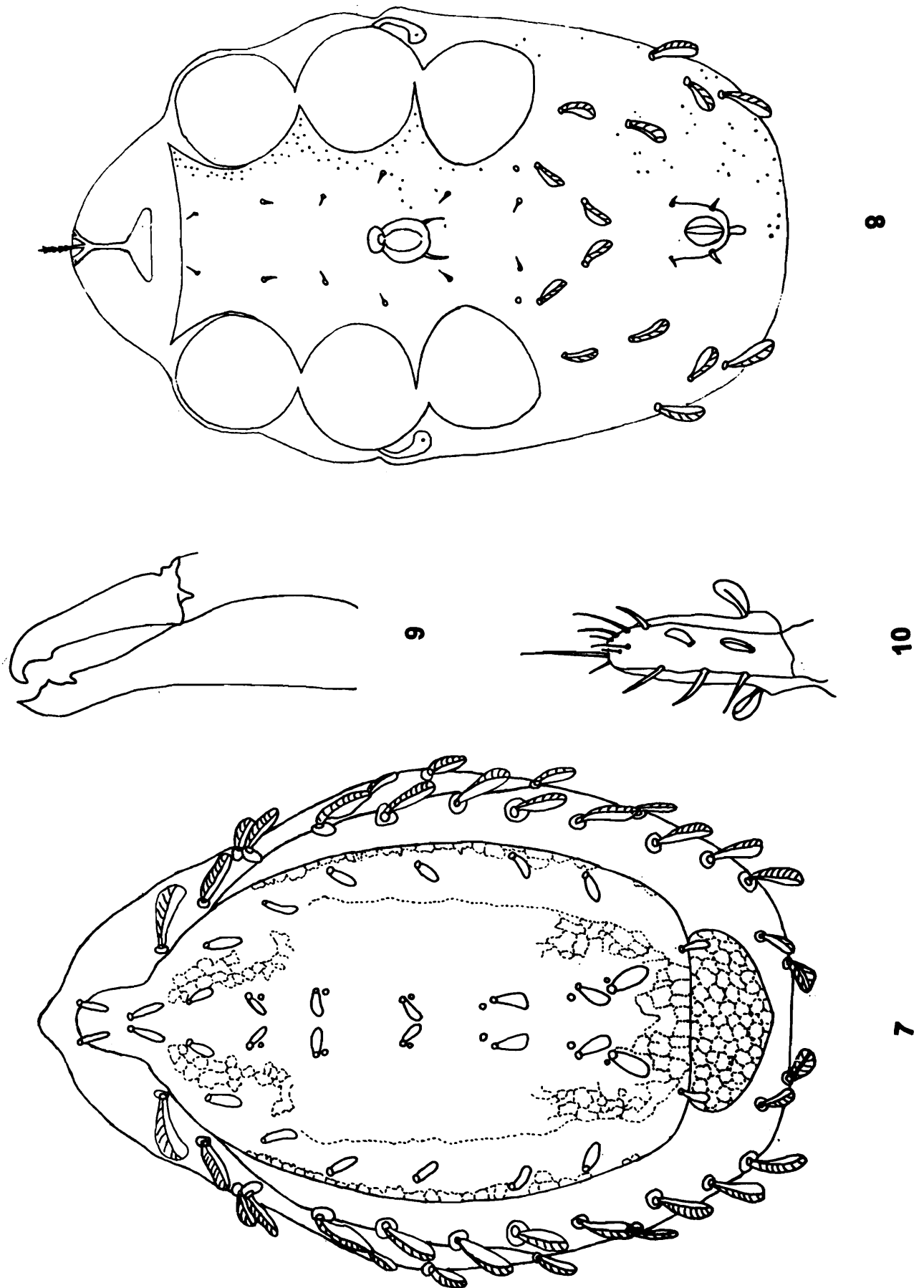
*Distribution* : India : Uttar Pradesh, West Bengal. Elsewhere : Austria, Britain, Italy.

*Asca pseudospicata* Bhattacharyya, 1965

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

*Material examined* : 1 ♂, India : West Bengal : Calcutta, Bhowanipur; 24.iii.1992; ex. soil under Wood apple tree (*Aegle marmelos*) ; coll. Sabyasachi Sarkar.

*Distribution* : India : Uttar Pradesh, West Bengal.



Figs. 7-10. : *Polyaspis (Polyaspis) bengalensis* Pramanik and Raychaudhuri, male  
7. Dorsum; 8. Venter; 9. Chelicera; 10. Leg I.

*Gymnolaelaps sitalaensis* Bhattacharyya, 1966

1966. *Gymnolaelaps sitalaensis* Bhattacharyya, *Zool. Anz.*, 177 (2) : 153.

*Material examined* : 1 ♂, India : West Bengal : Calcutta, Bhowanipur; 22.iii.1992; ex. soil under Jack fruit tree (*Artocarpus integrifolia*); coll. Sharmistha Sarkar.

*Distribution* : India : West Bengal.

*Epicrosejus abinashi* Bhattacharyya, 1966

1966. *Epicrosejus abinashi* Bhattacharyya, *J. Bombay nat. Hist. Soc.*, 62 (3) : 573.

*Material examined* : 2 ♂♂, India : West Bengal : Calcutta, Elgin Road; 24.iii.1992; ex. soil of grassland coll. Sharmistha Sarkar.

*Distribution* : India : West Bengal.

*Gamasiphis indicus* Bhattacharyya, 1978

1978. *Gamasiphis indicus* Bhattacharyya, *Indian J. Acar.*, 2 : 78.

*Material examined* : 2 ♀♀, India : West Bengal : Calcutta, Bhowanipur; 24.iii.1992; ex. soil under Wood apple tree (*Aegle marmelos*) ; coll. Sabyasachi Sarkar.

*Distribution* : India : West Bengal.

## SUMMARY

A new species, *Polyaspis (Polyaspis) calcuttaensis* sp. nov. is described and illustrated from Calcutta, West Bengal. The male of the species *Polyaspis (Polyaspis) bengalensis* Pramanik and Raychaudhuri, 1978 is recorded for the first time with description and illustration. The subgenus *Adyscritaspis* is treated here as a junior synonym of subgenus *Polyaspis*. Five other known species of mesostigmatid mites viz., *Hypoaspis vacua* (Michael, 1891); *Asca pseudospicata* Bhattacharyya, 1965; *Epicrosejus abinashi* Bhattacharyya, 1966; *Gymnolaelaps sitalaensis* Bhattacharyya, 1966 and *Gamasiphis indicus* Bhattacharyya, 1978 are also reported as first record from Calcutta.

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