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## A new species of *Proparholaspulus* (Acari : Parholaspidae) from India

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ABSTRACT — Adult stages of *Proparholaspulus elongatus* n. sp., collected from bamboo leaf litter are described and illustrated. A key to six *Proparholaspulus* species is given.

KEYWORDS — *Proparholaspulus elongatus* n. sp.; bamboo leaf litter; India; key

### INTRODUCTION

The genus *Proparholaspulus* was described by Ishikawa (1980), and *Proparholaspulus suzukii*, described from Japan, was designated as type-species. The genus *Proparholaspulus* is mainly characterized by the absence of metasternal shield as well as by the fusion of epigynial shield with ventrianal shield, thereby forming geniti-ventrianal shield. Ishikawa also transferred *Neoparholaspulus pasohensis* Ishikawa, 1976, to the new genus. In 1987, he described two species, namely *P. montanus* and *P. angustatus* from Philippines. Liang and Hu (1993) described *P. ishikawai* from China. The present paper deals with the description of a new species collected from bamboo leaf litter in India. With description of the present new species, generic strength of *Proparholaspulus* stands at six. The earlier described species are known to occur in litter, soil and tree moss. This is the first record of the genus from India. A key to all six species is provided in the present communication.

### MATERIALS AND METHODS

Standard Berlese-Tullgren dry funnel extraction method has been followed for extracting the specimens. Temporary mounting was done by using lactic acid. Type materials are deposited in the Zoology Department, Yogoda Satsanga Palpara Mahavidyalaya, which will be deposited later in the National Zoological Collection (NZC), Zoological Survey of India, Kolkata. The present article follows the terminology and abbreviation of Lindquist and Evans (1965). Measurements are taken at their widest point.

### TAXONOMY

#### *Proparholaspulus elongatus* n. sp. (Figures 1-2)

Diagnosis — Hypertrichous dorsal chaetotaxy; 48 pairs of setae on dorsal shield and 26 pairs on lateral soft integument. Female with paired, dagger-shaped presternal platelets; male with three presternal platelets. Corniculi longer than internal malae.

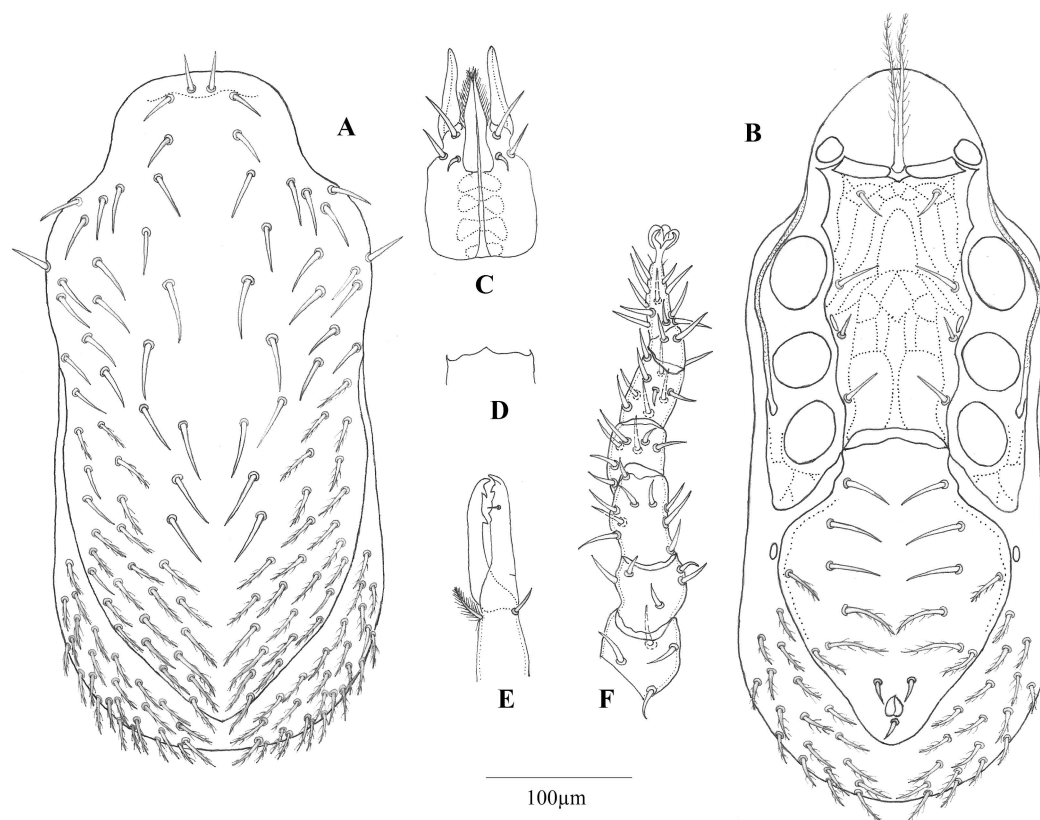


FIGURE 1: *Proparholaspulus elongatus* n. sp., female: A – Dorsum; B – Venter; C – Gnathosoma; D – Tectum; E – Chelicera; F – Leg II.

Cheliceral brush pilose. Femur and genu of leg II in male with thumb-like apophysis.

Material examined — Holotype ♀, India, West Bengal, Hooghly, Harihar; 22°49.917'N, 87°57.801'E; soil under bamboo leaf litter; 29 July, 2014; S. Kheto coll. Paratype: 1♂, collection data same as for holotype.

**Female:** Dorsum (Fig. 1A) — Dorsum elongated, sclerotized, faintly reticulate apically, 691 µm long, 298 µm wide at level of coxae II. Holodorsal shield (662 µm long, 298 µm wide) truncated posteriorly, with 48 pairs of setae – 23 pairs of simple setae anteriorly, 25 pairs of pilose setae posteriorly; lateral membrane with 26 pairs of pilose setae. Setal length ranges from 24 µm to 53 µm; chaetotaxy of dorsum as in Fig. 1A.

Venter (Fig. 1B) — Tritosternum 152 µm long, bipartite, with long plumose laciniae (122 µm); tri-

tosternal base narrow, flanked by paired dagger-shaped presternal platelets. Sterno-metasternal shield (243 µm long, 141 µm wide at its widest point) distinctly reticulated, with three pairs of sternal setae and one pair of metasternal setae (st1-35 µm, st2-39 µm, st3-25 µm and st4-39 µm), fused with presternal shield anteriorly. Geniti-ventrianal shield (293 µm long, 226 µm wide at its widest point), with simple, paired, genital setae (st5-49 µm) and six pairs of setae of which the four most posterior pairs are pilose, with three perianal setae (18 µm).

Ophistogastric integument with 18 pilose setae (28 – 32 µm). Paired metapodal shield small, closely adjacent to widest portion of geniti-ventrianal shield. Peritreme narrow; stigma small, situated at mid-level of coxae III and IV; peritrematal shield wide, reticulated posteriorly, fused anterolaterally with geniti-ventrianal shield.

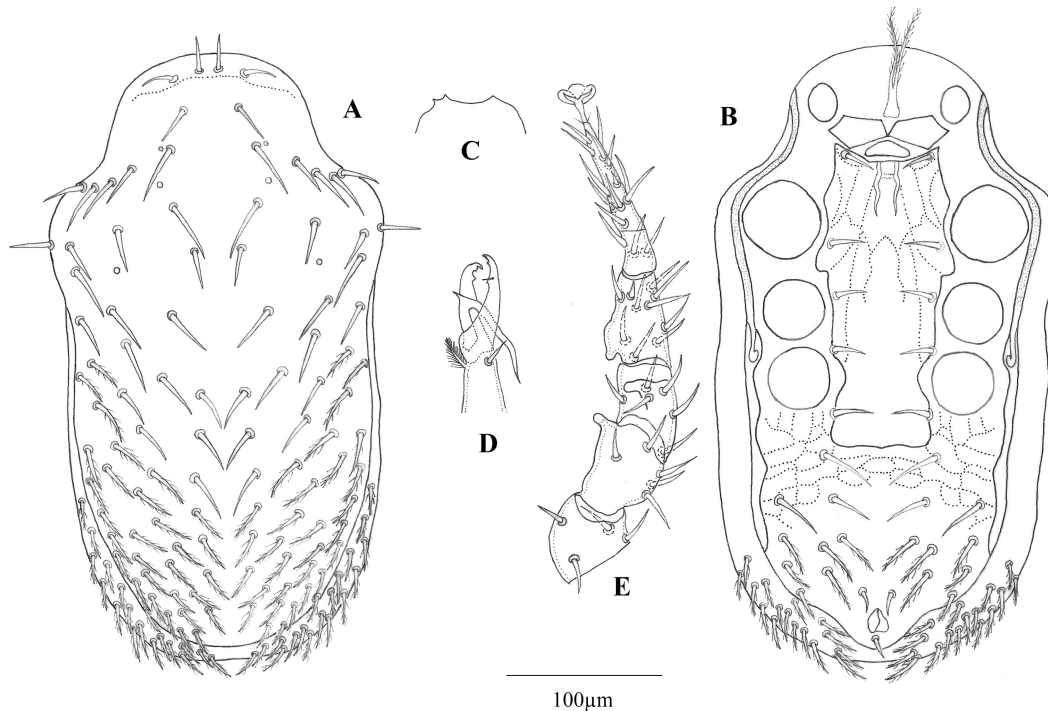


FIGURE 2: *Proparholaspulus elongatus* n. sp., male: A – Dorsum; B – Venter; C – Tectum; D – Chelicera; E – Leg II.

Gnathosoma (Figs. 1C-E) — Hypostomal groove narrow, denticles not obviously discernible (Fig. 1C); shape of tectum as in Fig. 1D; corniculi 81  $\mu\text{m}$  long; hyposomatic setae (22 – 53  $\mu\text{m}$ ) simple; palp apotele three-tined.

Cheliceral fixed digit (131  $\mu\text{m}$ ) tridentate, movable digit (125  $\mu\text{m}$ ) bidentate; pilus dentilis short and simple; cheliceral brush (39  $\mu\text{m}$ ) pilose (Fig. 1E).

Legs (Fig. 1F) — Tarsus of leg I with small claws and pulvilli, tarsi II-IV well-developed (Fig. 1F); length (excluding ambulacra) of legs I-IV: 739  $\mu\text{m}$ , 432  $\mu\text{m}$ , 413  $\mu\text{m}$  and 490  $\mu\text{m}$  respectively.

**Male:** Dorsum (Fig. 2A) — Dorsum 595  $\mu\text{m}$  long, 288  $\mu\text{m}$  wide; dorsal chaetotaxy (Fig. 2A) similar to that of female; dorsal setal length ranges between 21  $\mu\text{m}$  and 53  $\mu\text{m}$ .

Venter (Fig. 2B) — Tritosternum with long pilose laciniae. Holoventral shield distinctly reticulated, with three presternal platelets of which lateral pair is pentagonal in shape while the median

platelet is roughly triangular in shape, arranged as illustrated. Sternitigenital shield (282  $\mu\text{m}$  long, 131  $\mu\text{m}$  wide) widened anteriorly, narrowed posteriorly reticulated, with five pairs of setae; st1, st3 and st4 subequal (28  $\mu\text{m}$ ) in length; st2 and st5 35  $\mu\text{m}$  and 38  $\mu\text{m}$  long respectively. Genital aperture placed at anterior margin of sternitigenital shield. Holoventral shield with nine pairs of setae, most posterior six pairs are pilose. Ophistogastric integument with 16 pairs of pilose setae (Fig. 2B).

Gnathosoma (Figs. 2C-D) — Generally similar to that of female. Tectum anteriorly concave (Fig. 2C). Movable digit of chelicerae with long, slightly sinuous spermtadactyl that exceeds the length of bidentate fixed digit; movable digit unidentate; pilus dentilis short, simple (Fig. 2D).

Legs (Fig. 2E) — Legs I-IV 710  $\mu\text{m}$ , 422  $\mu\text{m}$ , 403  $\mu\text{m}$  and 430  $\mu\text{m}$  long (excluding ambulacra) respectively, with simple, spine-like setae; femur, genu and tibia of leg II with a strong ventral spur as illustrated (Fig. 2E).

Etymology — The specific epithet *elongatus* refers to the elongated shape of the specimens.

Differential diagnosis — The female of *P. elongatus* n. sp. superficially resembles to *P. pasohensis* (Ishikawa, 1976) in having only one pair of presternal platelets, in the shape of holodorsal shield, peritrematal shield, and in cheliceral morphology. However, the two species differ in the shape of geniti-ventrianal and presternal shield, and in the relative lengths of the tritosternal laciniae. *P. elongatus* differs from all other known species of *Proparholaspulus* in the general shape of the tectum and its marginal variation between male and female, as well as in the nature and number of the setae on dorsum and venter.

**Key to the females of the genus *Proparholaspulus*:**

1. One pair of presternal platelets; dorsum with more than 41 pairs of setae; geniti-ventrianal shield with four to six pairs of simple to pilose preanal setae ..... 2  
— Two pairs of presternal platelets; dorsum with 41 pairs of setae; geniti-ventrianal shield with three pairs of simple preanal setae... .. *P. angustatus* Ishikawa, 1987
2. Dorsum with fewer than 74 pairs of simple setae; tectum with an elongated median extension ..... 3  
— Dorsum with 74 pairs of simple to pilose setae; tectum without any elongated median extension..... .. *P. elongatus* n. sp.
3. Geniti-ventrianal shield with six pairs of simple preanal setae; fixed and movable digit of chelicerae tridentate and bidentate respectively; tectum with two lateral projections..... 4  
— Geniti-ventrianal shield with five pairs of simple preanal setae; fixed and movable digit of chelicerae pentadentate and tridentate respectively; tectum without lateral projection ..... 5
4. Dorsum with 55 pairs of simple setae; tectum with anteriorly divided median extension..... .. *P. montanus* Ishikawa, 1987

— Dorsum with 56 pairs of simple setae; tectum with sharply pointed median extension..... .. *P. pasohensis* (Ishikawa, 1976)

5. Dorsum with 45 pairs of simple setae; lateral membrane with 14 pairs of setae ..... *P. ishikawai* Liang and Hu, 1993

— Dorsum with 43 pairs of simple setae; lateral membrane with 12 pairs of setae..... .. *P. suzukii* Ishikawa, 1980

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