



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

A.K. Bhattacharyya, S. Kheto

► To cite this version:

A.K. Bhattacharyya, S. Kheto. A new species of *Proparholaspulus* (Acari : Parholaspidae) from India. *Acarologia*, 2016, 56 (4), pp.633-637. 10.1051/acarologia/20164145 . hal-01547439

HAL Id: hal-01547439

<https://hal.science/hal-01547439>

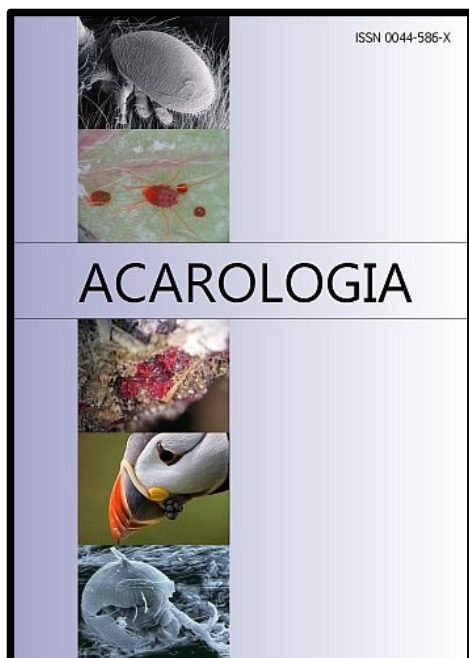
Submitted on 26 Jun 2017

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



Distributed under a Creative Commons Attribution - NonCommercial - NoDerivatives 4.0
International License



ACAROLOGIA

A quarterly journal of acarology, since 1959
Publishing on all aspects of the Acari

All information:



<http://www1.montpellier.inra.fr/CBGP/acarologia/>
acarologia@supagro.inra.fr



**Acarologia is proudly non-profit,
with no page charges and free open access**

Please help us maintain this system by
encouraging your institutes to subscribe to the print version of the journal
and by sending us your high quality research on the Acari.

Subscriptions: Year 2017 (Volume 57): 380 €

<http://www1.montpellier.inra.fr/CBGP/acarologia/subscribe.php>

Previous volumes (2010-2015): 250 € / year (4 issues)

Acarologia, CBGP, CS 30016, 34988 MONTFERRIER-sur-LEZ Cedex, France

The digitalization of Acarologia papers prior to 2000 was supported by Agropolis Fondation under the reference ID 1500-024 through the « Investissements d'avenir » programme (Labex Agro: ANR-10-LABX-0001-01)



Supporting agricultural research
for sustainable development

Acarologia is under **free license** and distributed under the terms of the Creative Commons-BY-NC-ND which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original author and source are credited.

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

Asit K. BHATTACHARYYA and Suvendu KHETO

(Received 25 May 2016; accepted 04 August 2016; published online 31 October 2016)

Department of Zoology, Y. S. Palpara Mahavidyalaya, Palpara, Midnapore (E), West Bengal, India 721 458. asitzsi@yahoo.com, skheto91@gmail.com

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.

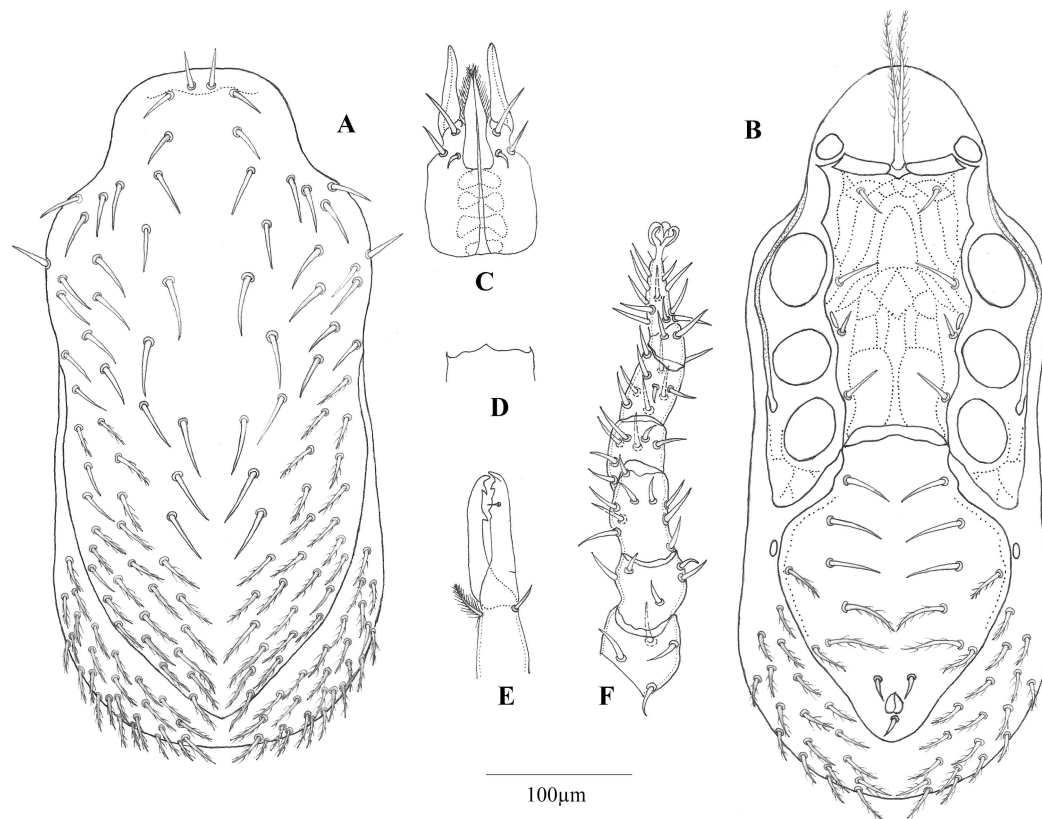


FIGURE 1: *Proparholaspulus elongatus* n. sp., female: A – Dorsum; B – Venter; C – Gnathosoma; D – Tectum; E – Chelicera; F – Leg II.

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.

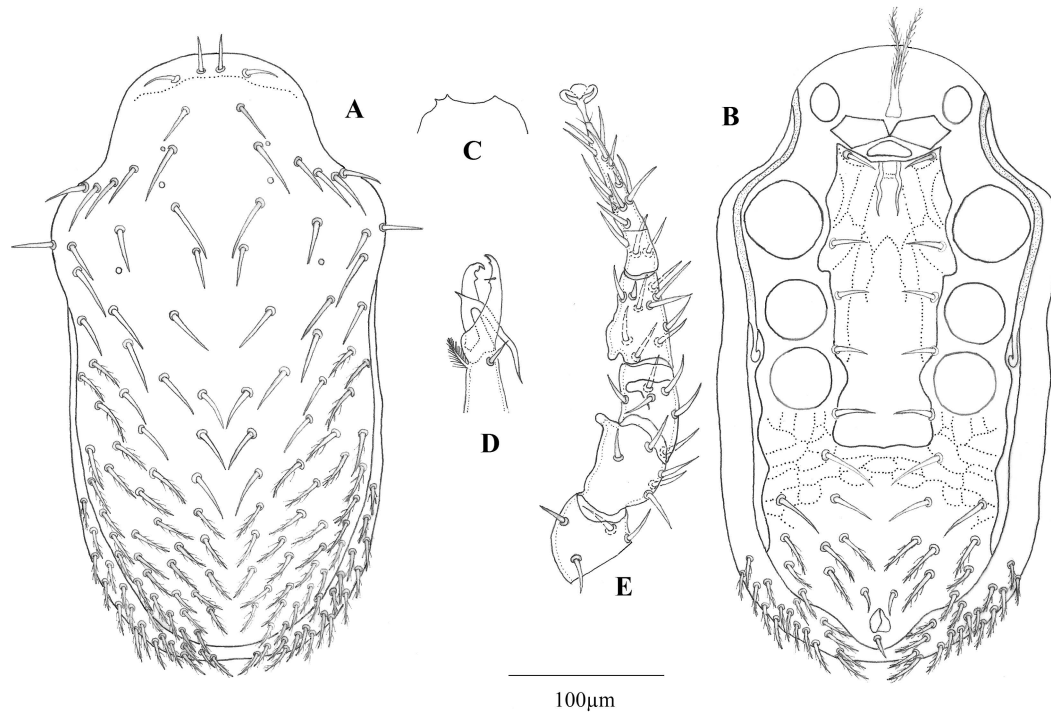


FIGURE 2: *Proparholaspulus elongatus* n. sp., male: A – Dorsum; B – Venter; C – Tectum; D – Chelicera; E – Leg II.

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

Cheliceral fixed digit (131 μm) tridentate, movable digit (125 μm) bidentate; pilus dentilis short and simple; cheliceral brush (39 μm) 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 μm , 432 μm , 413 μm and 490 μm respectively.

Male: Dorsum (Fig. 2A) — Dorsum 595 μm long, 288 μm wide; dorsal chaetotaxy (Fig. 2A) similar to that of female; dorsal setal length ranges between 21 μm and 53 μm .

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 μm long, 131 μm wide) widened anteriorly, narrowed posteriorly reticulated, with five pairs of setae; st1, st3 and st4 subequal (28 μm) in length; st2 and st5 35 μm and 38 μm long respectively. Genital aperture placed at anterior margin of sternitigenital shield. Holoventral shield with nine pairs of setae, most posterior six pairs are pilose. Ophisthogastric 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 spermatodactyl that exceeds the length of bidentate fixed digit; movable digit unidentate; pilus dentilis short, simple (Fig. 2D).

Legs (Fig. 2E) — Legs I-IV 710 μm , 422 μm , 403 μm and 430 μm 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 presteral 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


ACKNOWLEDGMENTS

Authors are thankful to Mr. Tushar Chakrabarty for providing necessary facilities to carry out this work. The study has been carried out with the financial assistance [F. 42-538/2013(SR)(MRP)] from University Grants Commission for the project entitled 'Diversity of soil mesostigmatid mites (Acarina) inhabiting the agricultural fields of southern West Bengal and their role as potential biocontrol agent'.

REFERENCES

- Ishikawa K. 1976 — Taxonomic investigation on mesostigmatid mites (Acarina) from Pasoh Forest Reserve, Malay Peninsula — Nat. Life Southeast Asia, 7: 232-252.
- Ishikawa K. 1980 — Taxonomic and ecological studies in the family Parholaspidae (Acari, Mesostigmata) from Japan (Part 2) — Bull. Natn. Sci. Mus., Ser. A. (Zool.), 6(1): 153-174.
- Ishikawa K. 1987 — Occurrence of *Proparholaspulus* (Acarina, Parholaspidae) in the Philippines — Bull. Natn. Sci. Mus., Tokyo, Ser. A, 13(2): 79-84.
- Lai-Rong L., Cheno-Ye H. 1993 — A new species and a new record of the genus *Proparholaspulus* Ishikawa from China (Acari, Mesostigmata: Parholaspidae) — Acta Zootaxonomica Sinica, 18: 63-65.
- Lindquist E.E., Evans G.O. 1965 — Taxonomic concept in the Ascidae, with a modified setal nomenclature for the idiosoma of the Gamasina (Acarina: Mesostigmata) — Mem. Ent. Soc. Can., 47: 1-64. doi:10.4039/entm9747fv. doi:10.4039/entm9747fv

COPYRIGHT

 Bhattacharyya A.K. and Kheto S. Acarologia is under free license. This open-access article is dis-

tributed under the terms of the Creative Commons-BY-NC-ND which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original author and source are credited.