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Authors: Zamani, Alireza, and Marusik, Yuri M.

Source: Revue suisse de Zoologie, 129(2) : 297-301

Published By: Muséum d'histoire naturelle, Genève

URL: https://doi.org/10.35929/RSZ.0076

Revue suisse de Zoologie (September 2022) 129(2): 297-301 ISSN 0035-418

A new species of *Plator* Simon, 1880 from Pakistan, with a supplementary description of *P. pandeae* Tikader, 1969 (Araneae: Trochanteriidae)

Alireza Zamani[1*] & Yuri M. Marusik[2, 3]

[1] *Zoological Museum, Biodiversity Unit, University of Turku, FI-20014, Finland*
[2] *Department of Zoology & Entomology, University of the Free State, Bloemfontein 9300, South Africa*
E-mail: yurmar@mail.ru
* *Corresponding author: zamani.alireza5@gmail.com*

Abstract: *Plator soastus* sp. nov. of the spider family Trochanteriidae Karsch, 1879 is described and illustrated on the basis of female specimens collected in the Swat Valley, representing the first record of the genus in Pakistan and its (north) westernmost record for the whole known range. Material of both sexes of *P. pandeae* Tikader, 1969 from northern India is also illustrated, and new morphological terms are proposed for certain sclerites of the male palp.

Keywords: Gnaphosoidea - India - SEM - Swat valley.

INTRODUCTION

Trochanteriidae Karsch, 1879 is a small family of spiders, currently comprising 50 extant species in six genera, primarily distributed in the pantropical regions, as well as 30 fossil species in six extinct genera from Baltic, Dominican, Rovno and Chiapas ambers (Dunlop *et al*., 2020; World Spider Catalog, 2022; Azevedo *et al*., 2022). Trochanteriids have a strongly flattened body, relatively elongated trochanters and noticeably laterigrade legs, and are typically found under bark or stones (Jocqué & Dippenaar-Schoeman, 2006). In Asia, the family is represented by a single genus, *Plator* Simon, 1880, with 16 species distributed from India to Japan (World Spider Catalog, 2022). Recently, we had the opportunity to examine some material of this genus collected in Pakistan, which represent a new species described and illustrated in this paper. Furthermore, based on material of *P. pandeae* Tikader, 1969 collected in northern India and using scanning electron microscopy, we propose new terms for certain previously unnamed sclerites of the male palp.

MATERIAL AND METHODS

Specimens were photographed using a Canon EOS 7D camera attached to an Olympus SZX16 stereomicroscope, and a JEOL JSM-5200 scanning electron microscope at the Zoological Museum of the University of Turku. Digital images were stacked using CombineZP and edited using CorelDraw graphic design software packages. Lengths of leg segments were measured on the dorsal side and listed as: total length (femur, patella, tibia, metatarsus, tarsus). The map was prepared using SimpleMappr (Shorthouse, 2010). The material examined is deposited at the Muséum d'histoire naturelle, Genève, Switzerland (MHNG) and at the Manchester Museum of the University of Manchester, UK (MMUE).

TAXONOMY

Family Trochanteriidae Karsch, 1879
Genus *Plator* Simon, 1880

Type species: *Plator insolens* Simon, 1880 from China, by monotypy.

Comments: This genus currently comprises 16 species known from India (5 spp.), China (12 spp.), Korea and Japan (one species each). Thanks to several recent regional revisions (Zhu *et al*., 2006; Lin & Zhu, 2016; Lin & Li, 2020; Sankaran *et al*., 2020), the group is relatively well studied, with most of the species (11) properly described on the basis of both sexes. Three species (*P. himalayaensis* Tikader & Gajbe, 1976a; *P. kashmirensis* Tikader & Gajbe, 1973; *P. solanensis* Tikader & Gajbe, 1976b) are known only from females, one only from males (*P. kamurai* Lin & Li, 2020), and for one species (*P. indicus* Simon, 1897) there are

Manuscript accepted 28.03.2022
DOI: 10.35929/RSZ.0076

no illustrations of the copulatory organs available in the literature, albeit having been described from both sexes (World Spider Catalog, 2022). The new species described in this paper represents the first record of the genus for Pakistan and the (north)westernmost record for the whole known range of the genus.

Plator soastus sp. nov.

Figs 1E-J, 4

Type material: MHNG; ♀ holotype and 1 ♀, 1 juvenile paratypes; PAKISTAN, Khyber Pakhtunkhwa Province, Swat District, above Utroor, in a forest of fir (*Abies*) and cedar, under the bark of a very large fallen cedar trunk, 2600 m; 13.05.1983; leg. Cl. Besuchet & I. Löbl.

Etymology: The specific epithet is a name in apposition, i.e. the ancient Greek name for the Swat River.

Diagnosis: The new species is most similar to *P. pandeae* and *P. dazhonghua* Lin & Li, 2020 by having anterior epigynal pockets (*Ap*). From the former species it can be distinguished by the completely fused pockets forming some kind of a narrow hood (*vs*. only indistinctly connected and forming a much wider structure), by glands (*Gl*) being as long as the oval receptacles (*Re*) (*vs*. glands much shorter than the round receptacles), and by the presence of an epigynal septum (*Se*) (*vs*. lacking). From *P. dazhonghua* it can be distinguished by the different shape of the anterior pockets (fused *vs*. separate) located at a larger distance from the copulatory openings (Fig. 1H cf. Lin & Li, 2020: fig. 2A), as well as by the considerably shorter copulatory ducts (or secondary spermathecae, *sensu* Lin & Li, 2020) (Fig. 1I cf. Lin & Li, 2020: fig. 2B).

Description: FEMALE (holotype). Habitus as in Fig. 1E-G. Total length 8.15. Carapace 2.65 long, 3.95 wide. Eye sizes: anterior median eye 0.17, anterior lateral eye 0.14, posterior lateral eye 0.20, posterior median eye 0.11. Carapace, sternum, labium, maxillae and chelicerae light brown. Legs of same color as carapace, without annulations. Legs I-II with numerous (especially leg I) and legs III-IV with a few erect ventral spiniform setae. Abdomen greyish dorsally, ventrally with dark patches on pale beige ground colour. Spinnerets uniformly light greyish brown. Measurements of legs: I 8.85 (3.09, 1.35, 1.94, 1.57, 0.90), II 12.17 (4.12, 1.62, 2.95, 2.32, 1.16), III 12.06 (4.11, 1.53, 2.92, 2.55, 0.95), IV 10.11 (3.43, 1.10, 2.40, 2.25, 0.93).
Epigyne as in Fig. 1H-J; plate 1.25 times wider than long, epigynal fovea shallow, more than three times wider than long, with weakly developed septum (*Se*, Fig. 1J); anterior pockets (*Ap*) fused and forming some kind of a hood; copulatory openings (*Co*) slit-like, transverse, located near lateral margin of fovea; copulatory ducts (*Cd*) large and broad, as wide as receptacles (*Re*); glands (*Gl*) long, more than four times longer than wide, slightly longer than receptacles; receptacles positioned in transverse plane, separated by about their length.
MALE. Unknown.

Distribution: Known only from the type locality in the Swat District, northern Pakistan (Fig. 4).

Plator pandeae Tikader, 1969

Figs 1A-D, 2-4

Plator pandeae Tikader, 1969: 253, figs 4-7 (♀). – Hu & Li, 1987: 360, figs 30.1-4, 31.1-4 (♂♀). – Hu, 2001: 279, fig. 160.1-4 (♂♀). – Zhu *et al*., 2006: 42, figs 20-24 (♂♀). All Chinese references refer to the same specimens. – Sankaran *et al*., 2020: 137, figs 10-14, 19-24 (♂♀; including a re-examination of type material).

Material: MMUE; 1 ♂, 1 ♀, 6 juveniles; INDIA, Himachal Pradesh, Kothi Village and environs, 32°18'N, 77°11'E, 2300-2600 m, under bark of spruce tree; 29.05-8.06.1999; leg. Y.M. Marusik.

Description: See Sankaran *et al*. (2020). Here we provide a detailed description of the palp and the epigyne, with an emphasis on information lacking in previous publications, and comment on the structure of the female tarsal claws.
MALE. Habitus as in Fig. 1B. Palp as in Figs 2-3; tibia large, almost as long as cymbium, twice longer than wide, with long and gradually tapering tibial apophysis having a slight curvature; cymbium almost triangular in lateral view (Fig. 2B); tegulum large, as long as cymbium in retrolateral view (Fig. 2B), wider than long in prolateral view (Fig. 2C); subtegulum (*St*) discoid, observable only in prolateral view (Figs 2C, 3C); tegulum with spine-like apophysis (*Ta*) (Fig. 3A); conductor (*Cn*) large, membranous, with a distoprolateral extension (Fig. 3C); embolus (*Em*) complex, with large base, tooth-like (in ventral view) distal ridge (*Et*) and concave mesal extension (*Me*) (Fig. 3A-C); embolus proper (*Ep*) (i.e. part containing opening of sperm duct) ribbon-shaped, circumflexing conductor, with serrated distal margin (Fig. 3A, C).
FEMALE. Habitus as in Fig. 1A. Palp with dentate claw having four small denticles in proximal half and bent at almost right angle (Fig. 3F). Tarsal claw of leg I with single series of four denticles in proximal half (Fig. 3G); denticles relatively larger than those of palpal claw.
Epigyne as in Figs 1C-D, 3E; epigynal fovea and septum indistinct; anterior part with a widely separated pair of pockets (*Ap*) connected by indistinct bridge but not fused; copulatory openings (*Co*) slit-like; copulatory ducts (*Cd*) longer than wide, with short glands (*Gl*) close to receptacles; receptacles (*Re*) globular, contiguous and located posteriorly.

Distribution: This species is currently known from four localities, three in India and one in southern Tibet, China (Fig. 4).

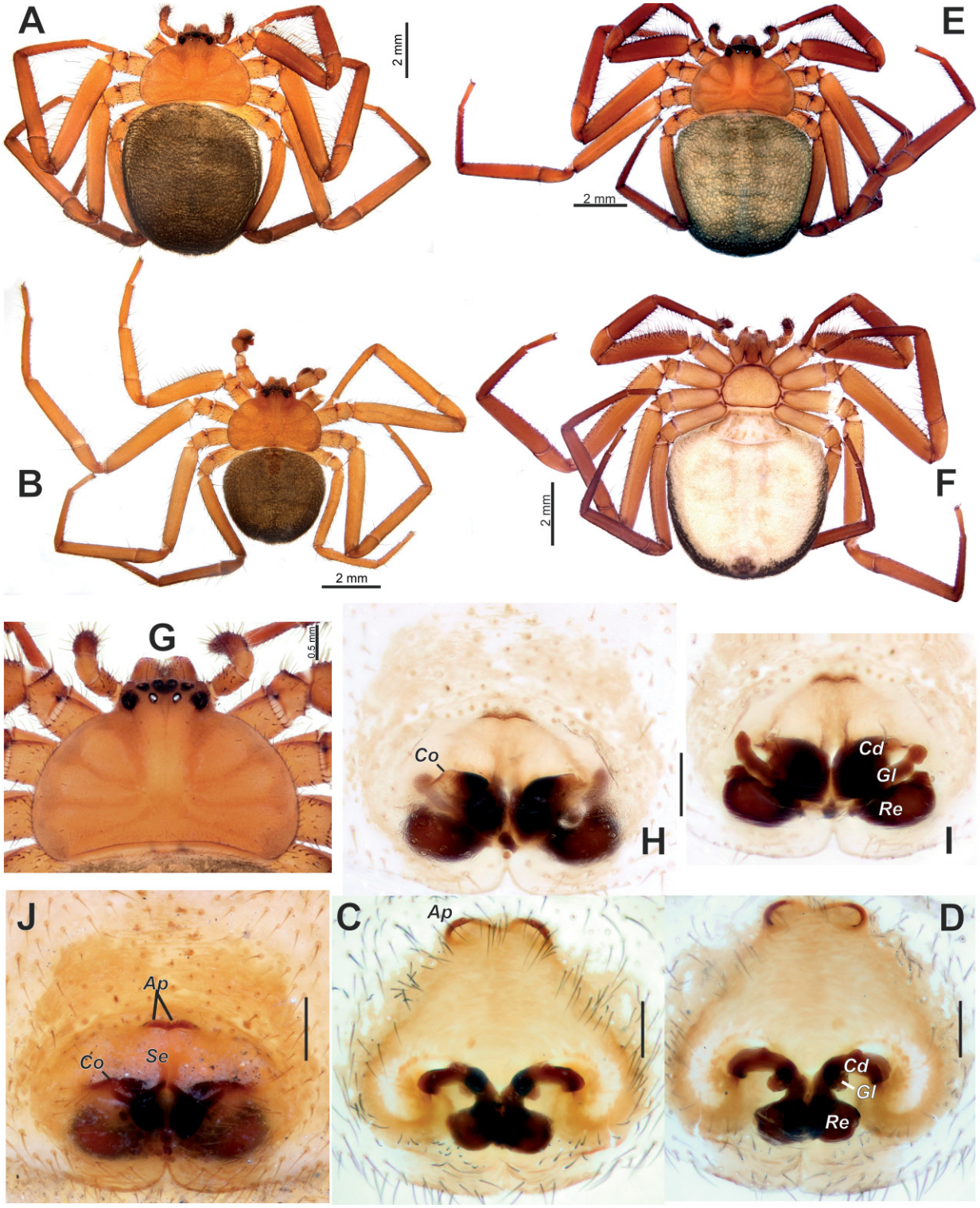

Fig. 1. Habitus and epigynes of *Plator pandeae* Tikader, 1969 (A-D) and *Plator soastus* sp. nov. (E-J). (A, E) Habitus of female, dorsal view. (B) Habitus of male, dorsal view. (F) Habitus of female, ventral view. (G) Prosoma of female, dorsal view. (C, H) Macerated epigyne, ventral view. (D, I) Vulva, dorsal view. (J) Intact epigyne, ventral view. Abbreviations: *Ap* - anterior pockets; *Cd* - copulatory duct; *Co* - copulatory opening; *Gl* - gland; *Re* - receptacle; *Se* - septum. Scale bars: 0.2 mm, unless stated otherwise.

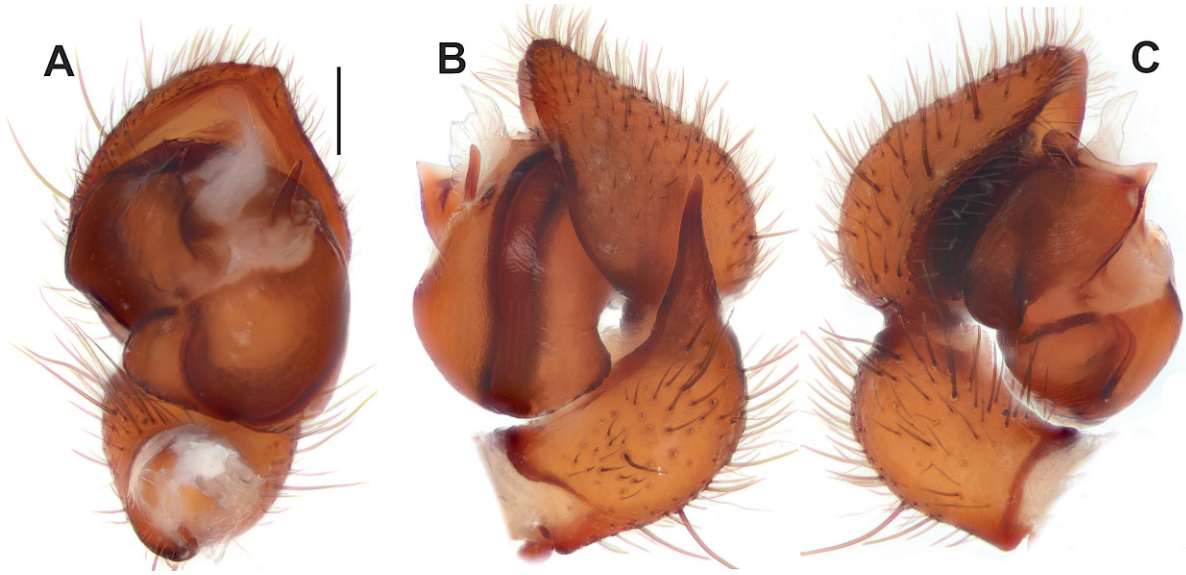

Fig. 2. Male palp of *Plator pandeae* Tikader, 1969. (A) Ventral view. (B) Retrolateral view. (C) Prolateral view. Scale bar: 0.2 mm.

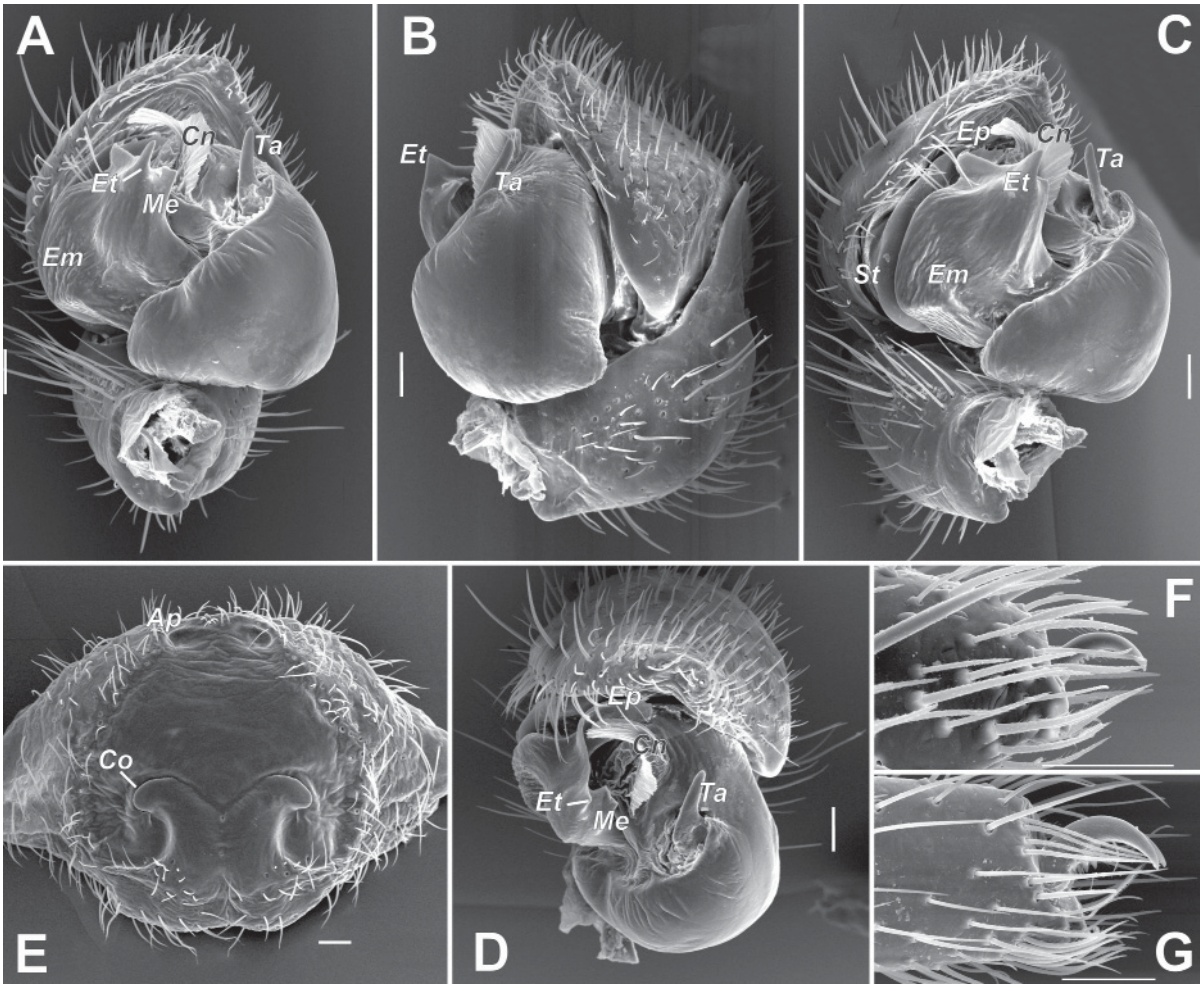

Fig. 3. Male palp (A-D), epigyne (E) and tarsal claws (F-G) of *Plator pandeae* Tikader, 1969. (A, E) Ventral view. (B) Retroventral view. (C) Proventral view. (D) Distal view. (F) Left female palp, prolateral view. (G) Left female tarsus I, prolateral view. Abbreviations: *Ap* - anterior pockets; *Cn* - conductor; *Co* - copulatory opening; *Em* - embolus; *Ep* - embolus proper; *Et* - tooth-like distal ridge; *Me* - mesal extension of embolic division; *Ta* - tegular apophysis; *St* - subtegulum. Scale bars: 0.1 mm.

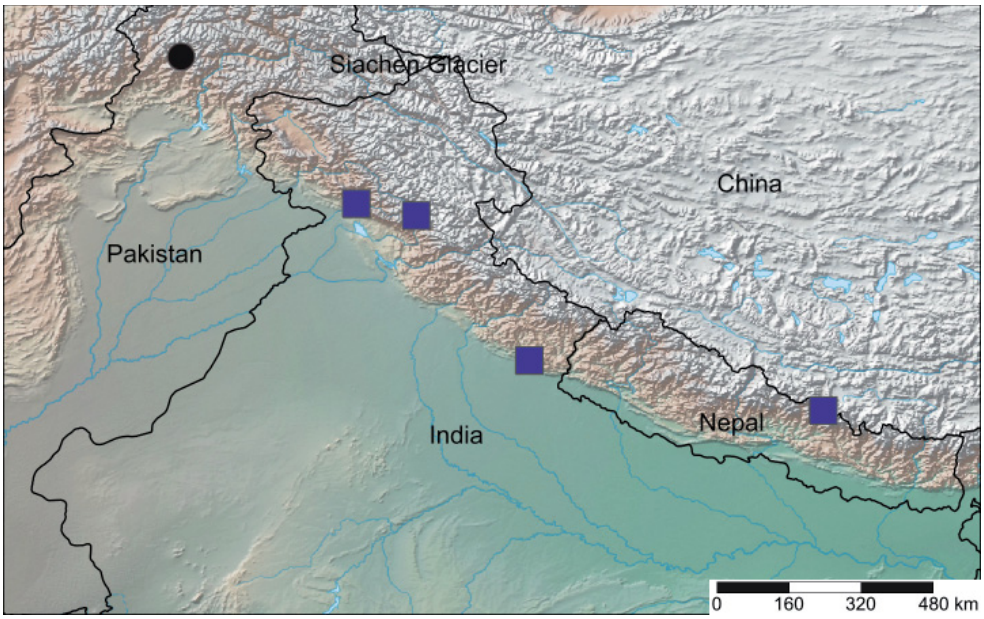

Fig. 4. Localities of *Plator soastus* sp. nov. (filled circle) and of *P. pandeae* Tikader, 1969 (filled squares).

ACKNOWLEDGMENTS

The first author is grateful to Lionel Monod and Peter J. Schwendinger for help during his visit to the MHNG and for providing the studied material. The comments of Pradeep M. Sankaran (Sacred Heart College, Cochin, India) and of the subject editor (Peter J. Schwendinger) on an earlier draft of the manuscript are also acknowledged.

REFERENCES

Azevedo G.H.F, Bougie T., Carboni M., Hedin M., Ramírez M.J. 2022. Combining genomic, phenotypic and sanger sequencing data to elucidate the phylogeny of the two-clawed spiders (Dionycha). *Molecular Phylogenetics and Evolution* 166(107327): 1-14.

Dunlop J.A., Penney D., Jekel D. 2020. A summary list of fossil spiders and their relatives (pp. 1-303). *In*: World Spider Catalog, version 23.0. Natural History Museum Bern. Available at http://wsc.nmbe.ch (accessed on 11.03.2022).

Hu J.L. 2001. Spiders in Qinghai-Tibet Plateau of China. *Henan Science and Technology Publishing House*, *Zhengzhou*, 658 pp.

Hu J.L., Li A.H. 1987. The spiders collected from the fields and the forests of Xizang Autonomous Region, China (pp. 315-392). *In*: Sheng-Chang H. (ed.). Agricultural insects, spiders, plant diseases and weeds of Xizang, vol. 1. *Xizang ren min chu ban she*, 463 pp.

Jocqué R., Dippenaar-Schoeman A.S. 2006. Spider families of the world. *Musée Royal de l'Afrique Central*, *Tervuren*, 336 pp.

Karsch F. 1879. Arachnologische Beiträge II. Die Aranëidengattung *Trochanteria*. *Zeitschrift für die gesammten Naturwissenschaften* 52: 536-539, pl. 7.

Lin Y.J., Li S.Q. 2020. Taxonomic studies on six species of the genus *Plator* (Araneae: Trochanteriidae) from China. *Zoological Systematics* 45(1): 24-39.

Lin Y.J., Zhu G.X. 2016. A new species of the spider genus *Plator* (Trochanteriidae) from south China. *Zootaxa* 4162(1): 189-192.

Sankaran P.M., Caleb J.T.D., Sebastian P. A. 2020. The species of the genus *Plator* Simon, 1880 in India (Araneae: Trochanteriidae). *Zootaxa* 4852(1): 133-141.

Shorthouse D.P. 2010. SimpleMappr, an online tool to produce publication-quality point maps. Available at http://www. simplemappr.net (accessed on 11.03.2022).

Simon E. 1880. Etudes arachnologiques. 11e Mémoire. XVII. Arachnides recueillis aux environs de Pékin par M. V. Collin de Plancy. *Annales de la Société Entomologique de France* (5) 10: 97-128.

Simon E. 1897. Histoire naturelle des araignées. Deuxième édition, tome second. *Roret*, *Paris*, 192 pp.

Tikader B.K. 1969. Studies of some rare spiders of the families Selenopidae and Platoridae from India. *Proceedings of the Indian Academy of Science* 69(B): 252-255.

Tikader B.K., Gajbe U.A. 1973. A new species of spider of genus *Plator* Simon (family-Platoridae) from India. *Current Science* 42: 829.

Tikader B.K., Gajbe U.A. 1976a. A new species of spider of the genus *Plator* Simon (family-Platoridae) from Almora, India. *Journal of the Bombay Natural History Society* 73: 178-179.

Tikader B.K., Gajbe U.A. 1976b. A new species of spider of the genus *Plator* Simon (family: Platoridae) from India. *Journal of the Bombay Natural History Society* 72: 797-799.

World Spider Catalog 2022. World Spider Catalog. Version 23.0. Natural History Museum Bern. Available at http://wsc.nmbe.ch (accessed on 11.03.2022).

Zhu M.S., Tang G.M., Zhang F., Song D.X. 2006. Revision of the spider family Trochanteriidae from China (Araneae: Gnaphosoidea). *Zootaxa* 1140: 31-51.