

A new baviine species of the genus *Maripanthus* Maddison from India (Araneae: Salticidae)

Authors: Caleb, John T.D., Francis, Clement, and Bhat, Vijay Krishna

Source: Revue suisse de Zoologie, 128(1) : 199-205

Published By: Muséum d'histoire naturelle, Genève

URL: <https://doi.org/10.35929/RSZ.0045>

BioOne Complete (complete.BioOne.org) is a full-text database of 200 subscribed and open-access titles in the biological, ecological, and environmental sciences published by nonprofit societies, associations, museums, institutions, and presses.

Your use of this PDF, the BioOne Complete website, and all posted and associated content indicates your acceptance of BioOne's Terms of Use, available at www.bioone.org/terms-of-use.

Usage of BioOne Complete content is strictly limited to personal, educational, and non - commercial use. Commercial inquiries or rights and permissions requests should be directed to the individual publisher as copyright holder.

BioOne sees sustainable scholarly publishing as an inherently collaborative enterprise connecting authors, nonprofit publishers, academic institutions, research libraries, and research funders in the common goal of maximizing access to critical research.

A new baviine species of the genus *Maripanthus* Maddison from India (Araneae: Salticidae)

John T.D. Caleb^{1,*}, Clement Francis² & Vijay Krishna Bhat³

¹ Biodiversity Lab, National Centre for Biological Sciences, Tata Institute of Fundamental Research, GKVK Campus, Bellary Road, Bengaluru 560 065, Karnataka, India

² No. 13, Andrea Villa, HRBR Layout, 3rd Block, 2nd main, 3rd cross, K.K. Halli, Bengaluru 560 084, Karnataka, India

³ SF. 102, R.P. Orchards Apartment, 2nd cross, M.R. Garden, KEB layout, Sanjyanagara, Bengaluru 560 094, Karnataka, India

* Corresponding author: caleb87woodgate@gmail.com

Abstract: A new species of the genus *Maripanthus* Maddison, 2020, *M. gloria* Caleb, sp. nov. (♂♀) is diagnosed and described from the Karnataka State of India. A map showing the distributional records of all known congeners is provided.

Keywords: Taxonomy - jumping spiders - Baviini - Chelekere - Karnataka.

INTRODUCTION

The baviine genus *Maripanthus* was established by Maddison in 2020, with *Maripanthus draconis* Maddison in Maddison *et al.*, 2020 as its type species (Maddison *et al.*, 2020). In the most recent review of baviines based on morphological and molecular data (Maddison *et al.*, 2020) the genus falls in ‘the Piranthus clade’ along with the only other genus, *Piranthus* Thorell, 1895. Presently the genus consists of five species: *M. draconis* (Singapore, Malaysia and Brunei), *M. jubatus* Maddison in Maddison *et al.*, 2020 (India), *M. menghaiensis* (Cao & Li in Cao *et al.*, 2016) (China), *M. reinholdae* Maddison in Maddison *et al.*, 2020 (Brunei and Malaysia) and *Maripanthus smedleyi* (Reimoser, 1929) (Sumatra) (see Maddison *et al.*, 2020; World Spider Catalog, 2021). The present paper gives the detailed description of a new species, *Maripanthus gloria* sp. nov. (♂♀), from Karnataka, India.

MATERIAL AND METHODS

Live specimens were photographed with a Nikon D850 DSLR camera with a Nikkor 105 mm macro lens, illuminated by a mounted Godox 860ii flash light with a diffuser. The morphological examination of specimens was carried out under a Leica SAPO stereomicroscope, micrographs were taken with a Leica MC190 HD camera and processed with the Leica Application Suite (LAS) version 4.13. The epigyne was dissected and cleared in 10% KOH. The temporary slide preparations were

examined under a Leica DM3000 LED compound microscope and photographed with a Leica MC190 HD camera. The distribution map was prepared with the online mapping software SimpleMappr (Shorthouse, 2010). Leg measurements are given in the following order: total (femur, patella, tibia, metatarsus, tarsus). All measurements are in millimetres. The type material is kept in the National Zoological Collection, Southern Regional Centre of the Zoological Survey of India (ZSIC), Chennai, and in the research collection of the National Centre for Biological Sciences (NCBS), Bengaluru.

Other abbreviations used in the text: AER = anterior eye row; ALE = anterior lateral eye; AME = anterior median eye; ECP = epigynal coupling pocket; EFL = eye field length; PER = posterior eye row; PLE = posterior lateral eye; PME = posterior median eye; RTA = retrolateral tibial apophysis.

TAXONOMY

Genus *Maripanthus* Maddison in Maddison *et al.*, 2020

Type species: *Maripanthus draconis* Maddison in Maddison *et al.*, 2020.

Diagnosis: Members are similar to those of *Indopadilla* Caleb & Sankaran in Caleb *et al.*, 2019 and *Bavia* Simon, 1877 but differ in lacking the characteristic ridged chelicerae and the thoracic bulges of *Indopadilla* spp. and in possessing a much longer embolus than



Figs 1-6. Photos of living spiders of *Maripanthus gloria* Caleb, sp. nov. (1-3) Male holotype. (4-6) Female paratype. (1, 4) Dorsal view. (2, 5) Frontal view. (3, 6) Lateral view.

Bavia (embolus shorter than length of tegulum in *Bavia*). The male palp has a freely articulating, long embolus arising from the basal side of the tegulum from which it is clearly separated (embolus short, arising from distal prolateral corner of bulbus in *Bavia*; embolus length variable, longer emboli arising as an extension of the tegulum in *Indopadilla*). The male maxillae have a pointed retrolateral-distal corner (thumb-like in *Bavia*; rounded in *Indopadilla*). The ECP is either unpaired and central, or split into two pockets on each side of the epigynal orifice (ECP on prominent medial bulge in *Bavia*; medial in *Indopadilla*). The epigynal atrium is long and gaping, situated in an anterior position; the spermathecae are situated posterior to the copulatory openings (spermathecae placed anterior to copulatory openings in *Indopadilla*) (Maddison *et al.*, 2020).

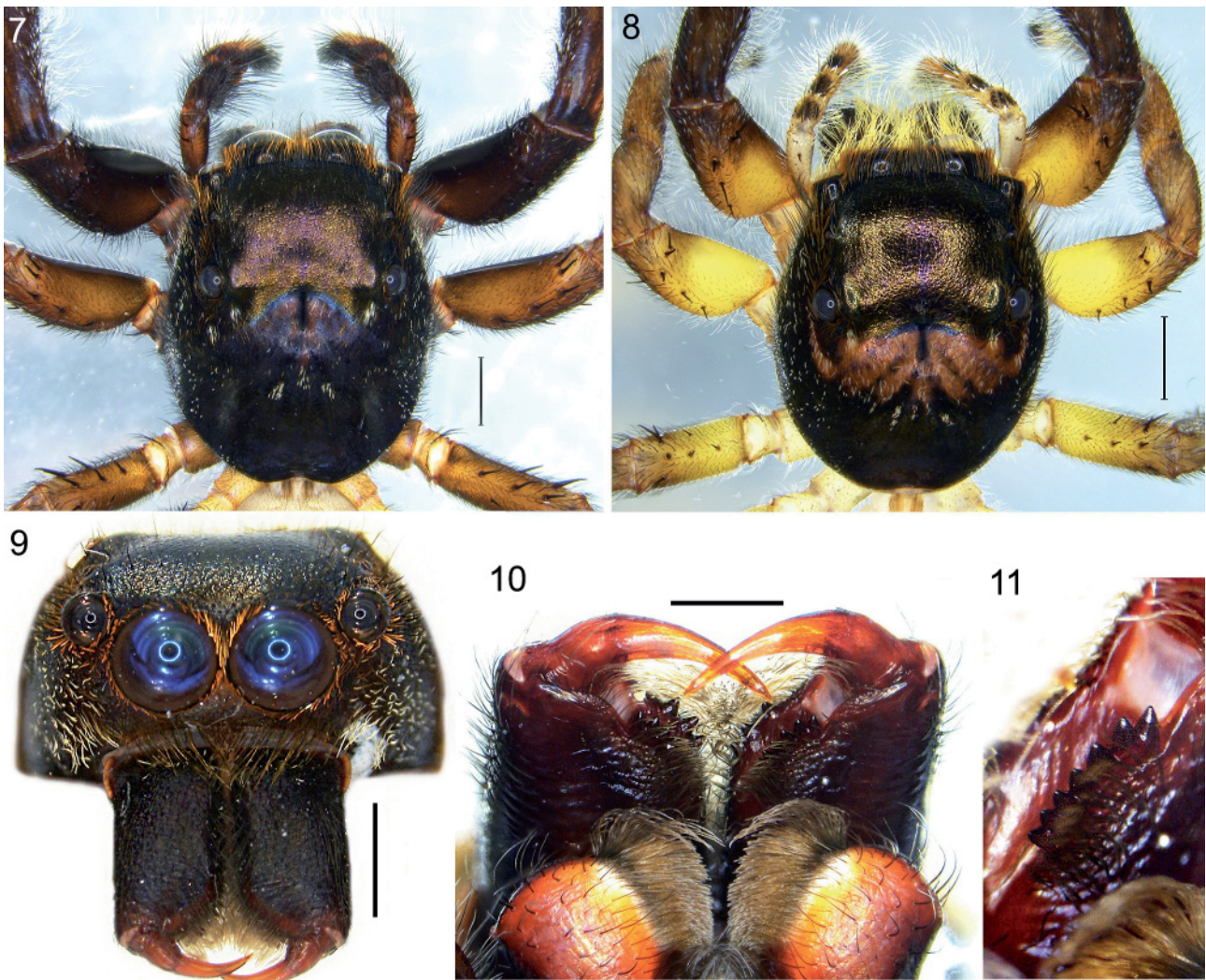
***Maripanthus gloria* Caleb, sp. nov.**

Figs 1-21

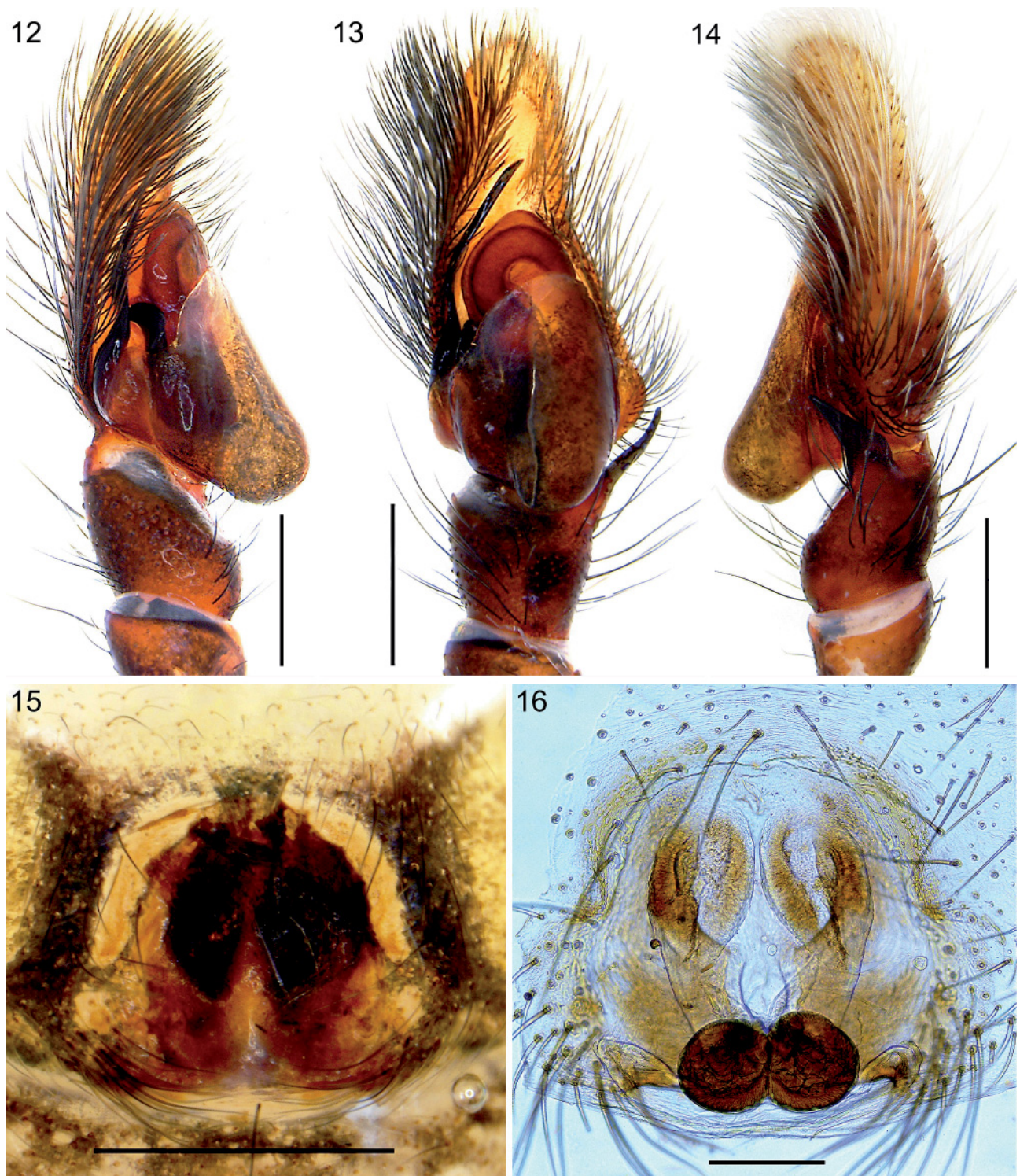
Type material: ZSIC-I/SP 36; male holotype; India, Karnataka, Bengaluru, Chelekere Lake; 13.025689°N, 77.644119°E; 887 m a.s.l.; 08.10.2020; leg. C.M. Francis & V.K. Bhat. – NCBS-IBC-BN633 & 634; 2 female paratypes, collected together with the holotype.

Etymology: The species is dedicated to Gloria, the daughter of the second author, for her great enthusiasm and interest during field work. The species epithet is a name in apposition.

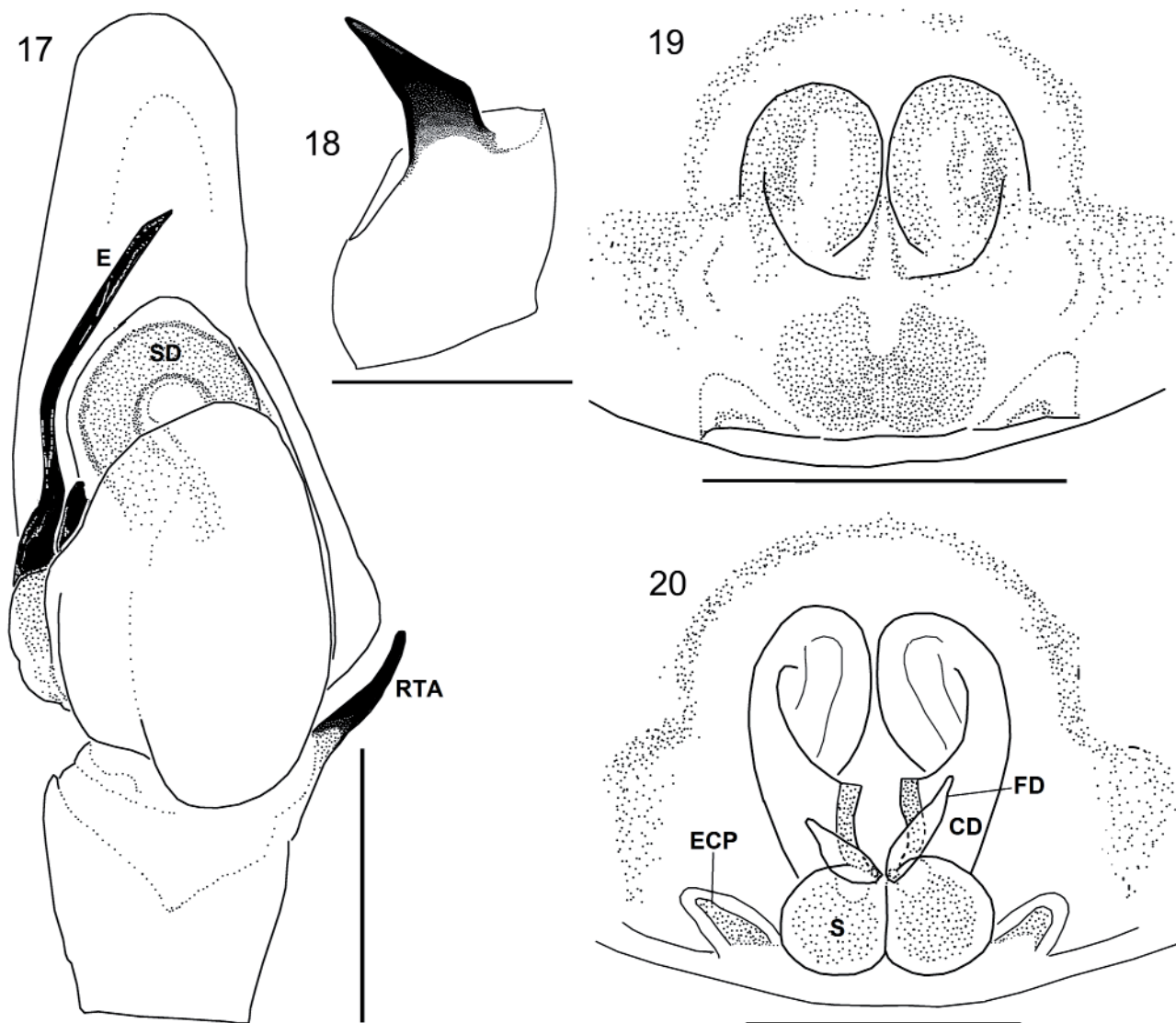
Diagnosis: Males of the new species are similar to those of *Maripanthus draconis*, but its palp has the shortest embolus among all known congeneric males; the RTA has a broad base (Figs 12-14, 17-18 cf. Maddison *et al.*, 2020: figs 188-190). Females are similar to those of *M. jubatus* by also possessing a pair of posterior



Figs 7-11. Male holotype (7, 9-11) and female paratype (IBC-BN633) (8) of *Maripanthus gloria* Caleb, sp. nov. (7-8) Carapace, dorsal view. (9) Carapace and chelicerae, frontal view. (10) Chelicerae, ventral view. (11) Retromarginal teeth of left chelicera in detail. Scale lines: 1 mm (7-9); 0.5 mm (10); not to scale (11).



Figs 12-16. Genital morphology of *Maripanthus gloria* Caleb, sp. nov. (12) Left palp of male holotype, prolateral view. (13) Same, ventral view. (14) Same, retrolateral view. (15) Epigyne of female paratype (IBC-BN633) with mating plug, ventral view. (16) Vulva of same specimen, dorsal view. Scale lines: 0.5 mm (12-15); 0.2 mm (16).



Figs 17-20. Genital morphology of *Maripanthus gloria* Caleb, sp. nov. (17) Left palp of male holotype, ventral view. (18) Left palpal tibia of holotype, retrolateral view. (19) Epigyne of paratype (IBC-BN633), ventral view. (20) Vulva of same female, dorsal view. Abbreviations: E = embolus; CD = copulatory duct; ECP = epigynal coupling pocket; FD = fertilization duct; RTA = retrolateral tibial apophysis; S = spermatheca; SD = sperm duct. Scale lines: 0.5 mm (17-19); 0.4 mm (20).

epigynal pockets, but they differ in having short, simple insemination ducts and globular spermathecae (Figs 15-16, 19-20 cf. Maddison *et al.*, 2020: figs 205-206).

Description

Male holotype: Total length 10.13; carapace 4.69 long, 3.92 wide; abdomen 5.44 long, 2.52 wide. Carapace black, covered with few scattered white scales on dorsal side of thoracic portion and on lateral sides (Figs 1, 3, 7). Clypeal region black, with brown hairs; eyes surrounded by reddish orange-coloured orbital setae (Figs 2, 9). Eye measurements: AME 0.94, ALE 0.50, PME 0.10, PLE 0.48, AER 3.01, PER 3.04, EFL 1.98. Clypeus height 0.13. Chelicerae black; three teeth on promargin and seven teeth on retromargin of fang groove (Figs 10-11).

Sternum oval, yellow, with brown margin; labium and palpal coxae brown, with paler margins. Leg I robust, dark brown except for yellow tarsus; legs I-II with dense ventral fringe of hairs (Figs 2-3); legs II-IV brown, with yellow tarsi and metatarsi. Leg measurements: I 14.29 (3.91, 2.62, 3.67, 2.84, 1.25); II 9.75 (3.00, 1.85, 2.08, 1.90, 0.92); III 9.15 (2.96, 1.61, 1.49, 2.23, 0.86); IV 10.76 (3.33, 1.59, 2.36, 2.35, 1.13). Leg formula: 1423. Abdomen narrowing posteriorly; brownish, lighter medially; covered with black hairs (Figs 1, 3). Venter light brown, with a broad dark brown median region. Spinnerets brown. Palps dark brown; cymbium dorsally clothed with yellowish white hairs, with a dense fringe of black hairs prolaterally (Figs 2, 12-14); embolus thick,

needle-like, arising from prolateral base of bulbus; RTA blade-like, with a broad base and pointed tip, directed ventrad (Figs 13-14, 18).

Female paratype (IBC-BN633): Total length 9.82, carapace 3.85 long, 3.29 wide; abdomen 5.97 long, 3.13 wide. Eye measurements: AME 0.86, ALE 0.40, PME 0.09, PLE 0.42. AER 2.54, PER 2.61, EFL 1.82. Clypeus height 0.15. Leg measurements: I 8.15 (2.42, 1.71, 1.88, 1.46, 0.68); II 6.85 (2.15, 1.42, 1.40, 1.25, 0.63); III 6.82 (2.21, 1.22, 1.11, 1.58, 0.70); IV 8.26 (2.56, 1.16, 1.82, 2.03, 0.69). Leg formula: 4123. Colouration pattern mostly as in male (Figs 4-6), different in the following: clypeus covered with yellowish hairs (Fig. 5); legs with paler proximal part of femora; legs III-IV with dark annulations close to joints (Figs 4, 6). Palps yellow, with dark brown annulations proximally (Fig. 5). Epigyne with a pair of shallow depressions separated by a raised septum in anterior half; a pair of pockets present at posterior epigynal margin; insemination ducts short, broad; spermathecae globular and contiguous with each other (Figs 15-16, 19-20).

Distribution: Known only from the type locality in India (Karnataka) (Fig. 21).

Note: Both paratype females examined have their epigynal region covered with a mating plug (Fig. 15). The presence of mating plugs in this genus is here recorded for the first time.

Habitat: The new species was collected from a public park in which lies the Chelekere Lake.

Discussion: When Maddison (2015) provided the first phylogenetic classification of the Salticidae only three genera were included in the tribe Baviini Simon, 1901a. In the most recent updated review (Maddison *et al.*, 2020) it includes seven genera (*Bavia*, *Indopadilla*, *Maripanthus*, *Padillothorax* Simon, 1901b, *Padillothorus* Prószyński, 2018 [assigned tentatively], *Piranthus* Thorell, 1895, and *Stagetillus* Simon, 1885). In India the tribe was known from a single species, *Padillothorax casteti* (Simon, 1900), until another species, *Bavia insularis* Malamel, Sankaran & Sebastian, 2015 (presently *Indopadilla insularis*), was described (see Malamel, Sankaran & Sebastian, 2015). More studies in the past four years have increased our knowledge of this group considerably (Caleb & Sanap, 2017; Malamel *et al.*, 2019; Caleb *et al.*, 2019; Nafin *et al.*, 2020; Maddison *et al.*, 2020). Of the 275 species of Salticidae currently known from India, seven species (2.5%) belong to the Baviini (*Indopadilla* - 3 species, *Piranthus* - 2 species, and one each of *Padillothorax* and *Maripanthus*) (see Caleb & Sankaran, 2021). The present paper adds the description of another species from southern India.

Some members of *Bavia* and *Indopadilla* superficially resemble those of *Maripanthus*, and confusion in generic placement of species among these three genera can occur.

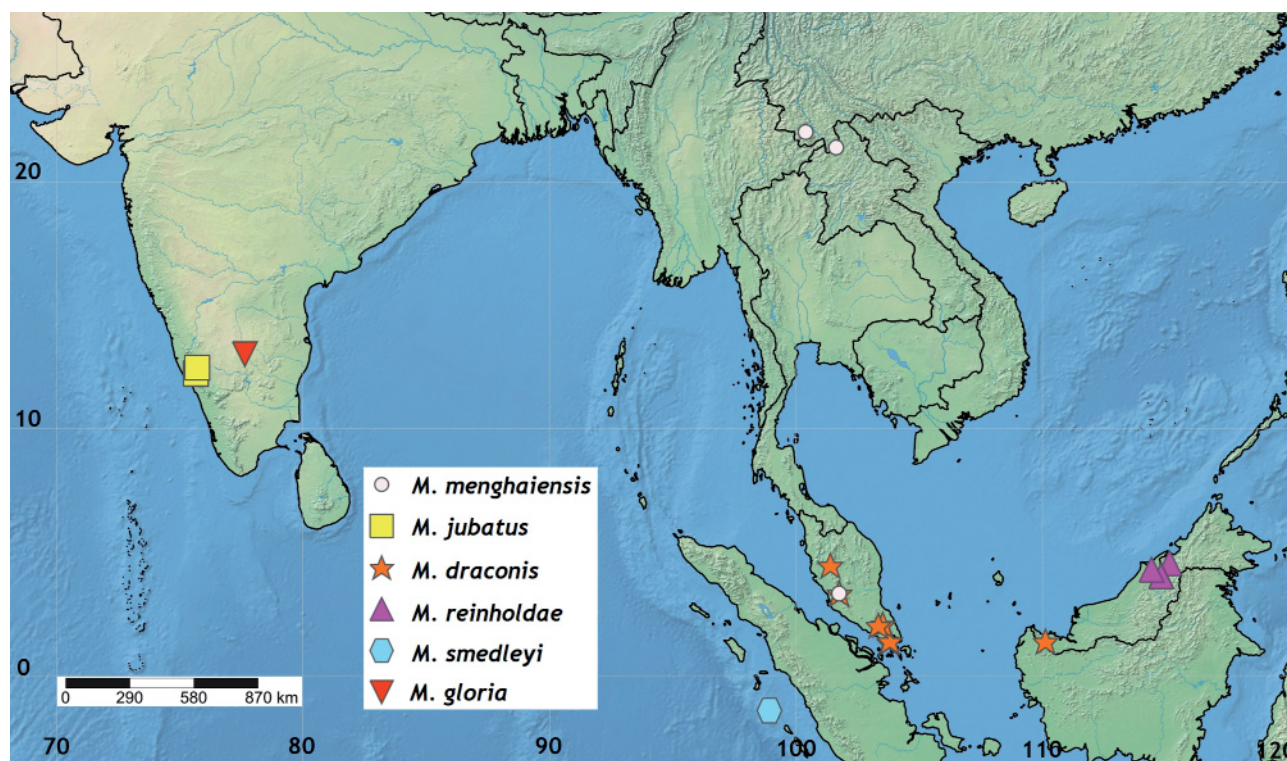


Fig. 21. Distributional records of all known *Maripanthus* species.

We place the new species confidently in *Maripanthus* on the basis of the following characters: chelicerae without the characteristic ridge and the thorax without bulges as seen in *Indopadilla* (Figs 1, 4, 7-9); embolus free, arising on the prolateral side of the bulbus, separated from the tegulum (Figs 12-13, 17), unlike in *Bavia* and *Indopadilla*; ECP split into pockets on each side of the epigynal orifice as in *M. jubatus*, but unlike in *Bavia* and *Indopadilla* which have an unpaired medial ECP; epigynal atria gaping (Figs 16, 19-20) (see Maddison *et al.*, 2020). This leaves no doubt that the new species is a member of *Maripanthus*, not of *Bavia* or *Indopadilla*.

ACKNOWLEDGEMENTS

We are grateful to Dr K.A. Subramanian, Officer-in-Charge, Southern Regional Centre (Chennai), Zoological Survey of India for allowing the use of microscope facilities, and to Dr Krushnamegh Kunte, National Centre for Biological Sciences, TIFR, Bengaluru for help in depositing specimens in the NCBS research collection. We thank Noel Clifford, a jumping spider enthusiast who assisted us in the field. John Caleb thanks the American Arachnological Society for a research grant from the Herbert Levi Fund (HLMFAR). Our sincere thanks go to Dr Dmitri Logunov (Manchester Museum, UK) for his suggestions and to Dr Peter Schwendinger (Natural History Museum of Geneva, Switzerland) for editing the manuscript.

REFERENCES

- Caleb J.T.D., Sanap R.V. 2017. Rediscovery of *Piranthus decorus* Thorell 1895 (Araneae: Salticidae) after 122 years since the original description. *Acta Arachnologica* 66(1): 25-29.
- Caleb J.T.D., Sankaran P.M. 2021. Araneae of India. Version 2021. Available from: <http://www.indianspiders.in> (accessed 27 January 2021).
- Caleb J.T.D., Sankaran P.M., Nafin K.S., Acharya S. 2019. *Indopadilla*, a new jumping spider genus from India (Araneae: Salticidae). *Arthropoda Selecta* 28(4): 567-574.
- Cao Q., Li S.Q., Żabka M. 2016. The jumping spiders from Xishuangbanna, Yunnan, China (Araneae, Salticidae). *ZooKeys* 630: 43-104.
- Maddison W.P. 2015. A phylogenetic classification of jumping spiders (Araneae: Salticidae). *Journal of Arachnology* 43: 231-292.
- Maddison W.P., Beattie I., Marathe K., Ng P.Y.C., Kanesharatnam N., Benjamin S.P., Kunte K. 2020. A phylogenetic and taxonomic review of baviine jumping spiders (Araneae: Salticidae: Baviini). *Zookeys* 1004: 27-97.
- Malamel J.J., Sankaran P.M., Sebastian, P.A. 2015. First record of the jumping spider genus *Bavia* Simon, 1877 from India, with the description of a new species. *Zootaxa* 4007(4): 596-599.
- Malamel J.J., Nafin K.S., Sudhikumar A.V., Sebastian P.A. 2019. Two new species of the jumping spiders (Araneae: Salticidae) from the genera *Epeus* Peckham et Peckham, 1886 and *Piranthus* Thorell, 1895 from India. *Arthropoda Selecta* 28(2): 267-276.
- Nafin K.S., Maddison W.P., Sudhikumar A.V. 2020. The first described male of the Asian jumping spider genus *Piranthus* Thorell, 1895 (Araneae: Salticidae: Baviini). *Peckhamia* 207.1: 1-7.
- Prószyński J. 2018. Review of genera *Evarcha* and *Nigorella*, with comments on *Emertonius*, *Padilothorax* [sic], *Stagetillus*, and description of five new genera and two new species (Araneae: Salticidae). *Ecologica Montenegrina* 16: 130-179.
- Reimoser E. 1929. *Spolia Mentawaiensis*. Araneae. *Bulletin of the Raffles Museum Singapore* 2: 125-133.
- Shorthouse D.P. 2010. SimpleMappr, an online tool to produce publication-quality point maps. Available from: <http://www.simplemappr.net> (accessed 21 December 2020).
- Simon E. 1877. Etudes arachnologiques. 5^e Mémoire. IX. Arachnides recueillis aux îles Philippines par MM. G. A. Baer et Laglaise. *Annales de la Société Entomologique de France* (5) 7: 53-96.
- Simon E. 1885. Arachnides recueillis par M. Weyers à Sumatra. Premier envoi. *Annales de la Société Entomologique de Belgique* 29: 30-39.
- Simon E. 1900. Descriptions d'arachnides nouveaux de la famille des Attidae. *Annales de la Société Entomologique de Belgique* 44: 381-407.
- Simon E. 1901a. Histoire naturelle des araignées. Deuxième édition, tome second. *Roret, Paris*, pp. 381-668.
- Simon E. 1901b. On the Arachnida collected during the Skeat expedition to the Malay Peninsula. *Proceedings of the Zoological Society of London* 71(1): 45-84.
- Thorell T. 1895. Descriptive catalogue of the spiders of Burma, based upon the collection made by Eugene W. Oates and preserved in the British Museum. *Taylor & Francis, London*, 406 pp.
- World Spider Catalog 2021. World Spider Catalog. Version 22.0. Natural History Museum Bern. Available from: <http://wsc.nmbe.ch> (accessed 27 January 2021).