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New distributional record of *Argiope versicolor* (Doleschall, 1859) (Araneae, Araneidae) from Kerala, India

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ABSTRACT: The orb-weaving spider *Argiope versicolor* (Doleschall, 1859), previously recorded from south and southeast Asia, is reported for the first time from Kerala, India. Specimens were collected from Kottayam district using hand collection methods and confirmed through morphological and molecular analyses. This record extends the known distribution of the species and contributes to the documentation of Kerala's spider fauna. Detailed observations on morphology, habitat, web structure, and stabilimentum pattern are provided. The mitochondrial sequence obtained in this study has been deposited in GenBank (Accession No. PQ721811.1). © 2026 Association for Advancement of Entomology

KEY WORDS: Orb-weaver, morphology, habitat, web structure, stabilimentum, molecular analyses, GenBank

Spiders of the family Araneidae are key predators in terrestrial ecosystems, contributing significantly to insect population control. The genus *Argiope* Audouin, 1826 is well known for its striking coloration, distinctive web architecture, and sexual dimorphism. *Argiope versicolor* (Doleschall, 1859) (Araneae, Araneidae), commonly referred to as the multi-colored St. Andrew's cross spider, has been documented across southeast Asia but remains understudied in the Indian subcontinent. Recent studies (Tyagi *et al*., 2019) reported its occurrence from Assam, India. However, to date, no records exist from peninsular India. Here, we report the first confirmed record of *A. versicolor* from Kerala, expanding the known distribution of the species.

Specimens were collected during field surveys in Kottayam district, Kerala using hand collection and individuals were preserved in 70% ethanol. Morphological features were examined using a Leica S8 APO MSV266 stereomicroscope, and photographs were taken using a Leica digital camera Flexacam C1 with image stacking via Automontage software.

Genomic DNA was extracted from leg tissue using NucleoSpin® Tissue Kit (Macherey-Nagel, Germany). PCR amplification and sequencing were conducted at the Rajiv Gandhi Centre for Biotechnology (RGCB), Thiruvananthapuram. The resulting mitochondrial DNA sequence was deposited in GenBank under the accession number PQ721811.1. Sequence quality was verified using Sequence Scanner Software v1.0, and alignments were performed using Geneious Pro v5.1. The distribution map was created using Data wrapper.

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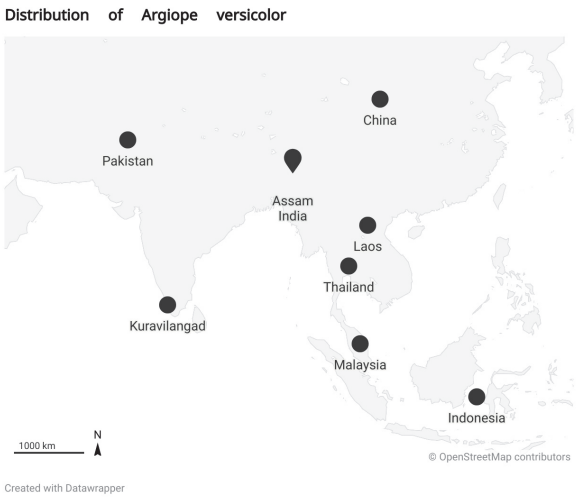

Fig. 1 Distribution of *Argiope versicolor* in the world. https://datawrapper.dwcdn.net/fYYlJ/5/

Argiope versicolor (Doleschall, 1859) (Figs. 1 - 5)

Morphology

Diagnosis:

Female identifiable by elongate pentagonal abdomen with yellow background and black symmetrical dorsal markings including a central folium-like patch; ventrally with a distinct black anchor-shaped marking. Epigyne with slender V-shaped anterior elevation, narrow median septum, and nearly rectangular basal plate; differs from *Argiope pulchella* by more delicate anterior elevation and scapus base configuration. Male palpal organ resembles *A. pulchella*, but embolus base lacks distinct tubercle; embolus does not extend beyond conductor tip; median apophysis slender with fine denticles dorsally (Yin *et al*., 1997).

Description (♀):

Total length: 11mm, carapace 4 mm long, abdomen 7 mm long. Carapace yellowish-brown, slightly convex, with distinct black marginal markings. Covered with fine setae. Cephalic region moderately elevated. Eyes: Eight in two rows. Median ocular quadrangle slightly wider than long. Lateral eyes close together. Eye arrangement as typical for Araneidae. Chelicerae: Short and strong; dark brown with lighter basal segment. Promargin with three teeth; retromargin with two smaller teeth. Sternum: Heart-shaped, yellowish with dark marginal spots; setose. Legs: Long and slender. Legs I and II longer than III and IV. Bright yellow with prominent black annulations at tibial, metatarsal and tarsal joints. Dense short setae along segments; few long spines especially on femora and tibiae. Leg formula: I > IV >II > III. Spination: femora with 1-2 dorsal spines, tibiae with multiple pairs of ventral spines.

I:17.00 (4.60 + 6.40 + 4.80 + 1.20); II:15.90 (3.90 + 5.90 + 4.80 + 1.30); III:10.90 (3.80 + 2.70 + 3.10 + 1.30); IV:19.00 (6.20 + 5.60 + 5.80 + 1.40).

Abdomen elongate and pentagonal, tapering posteriorly. Dorsal surface brightly colored: yellow background with black symmetrical markings; central folium-like dark patch evident. Dorsum with three horizontal bands. Lateral margins slightly serrated. Ventrally, abdomen yellowish with a prominent black anchor-shaped marking extending anteroposteriorly; epigastric region reddish.

Epigynal plate broad, wider than long, with a distinct, tongue-shaped median septum. Copulatory openings crescent-shaped, located laterally at the base of the septum. Lateral lobes well-developed, smoothly curved. In cleared view, spermathecae are subglobular, placed anterolaterally; copulatory ducts short and slightly curved. Plate moderately sclerotized, especially around openings and septum. The structure is superficially similar to that of *Argiope pulchella*, but distinguishable by the more delicate anterior elevation and the configuration of the scapus base (Yin et.al. 1997). Spinnerets: Three pairs; pale brown; posterior lateral spinnerets slightly elongate.

Colour in life: Bright yellow and black contrasting body with striking leg banding; ventral side more vivid, aiding in predator deterrence.

Distribution: Known from southeast Asia including India (Tyagi, 2019), China (Chen and Gao, 1990; Yin, 1997), Pakistan (Younas, 2024), Laos

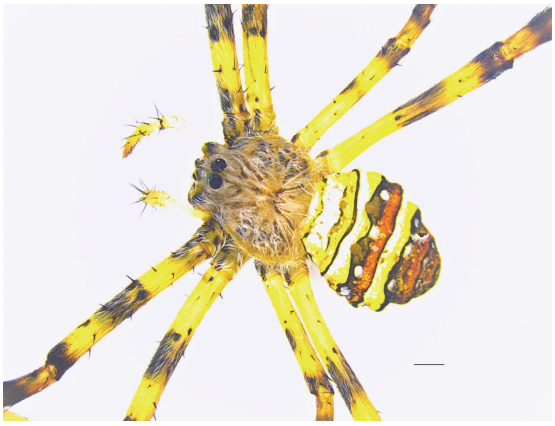

Fig. 2 Dorsal view. Scale bar =1 mm

Fig. 3 Ventral view. Scale bar =1 mm

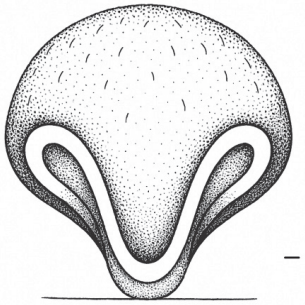

Fig. 4 Epigyne - Ventral view

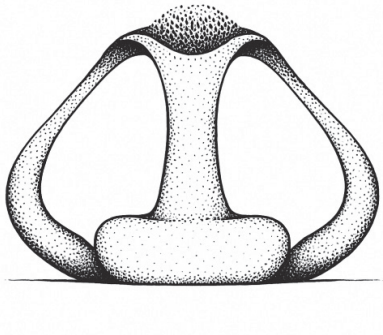

Fig. 5 Epigyne - Dorsal view

(Jäger, 2009), Malyasia (Pocock, 1897; Workman, 1896), Thailand and Indonesia (Doleschall, 1859). New record from Kuravilangad, Kottayam District, Kerala.

Specimen examined: 1 ♀, INDIA: Kerala: Kuravilangad, Kottayam, 52m, 9°452 20.53 N; 76°332 46.33 E., 02.ii.2024

Web architecture and stabilimentum: The webs feature prominent stabilimenta. Juveniles build discoid patterns; adults construct cruciform types. The structure varies with spider size, light intensity, and feeding status, supporting both prey attraction and predator deterrence functions.

Habitat and distribution: The species was observed in open, semi-disturbed habitats including gardens and paddy field margins. It constructs vertical orb-webs between shrubs and tall grasses. The coloration and patterning aid in camouflage and predator deterrence.

Molecular confirmation: The mitochondrial gene sequence obtained from the specimen (GenBank Accession No. PQ721811.1) matched closely with other known sequences of *Argiope versicolor*, confirming species identity. Phylogenetic analysis placed the specimen within a clade consisting of other *A. versicolor* entries from southeast Asia, supporting its identification and expanding the

biogeographical range of this species.

TGGGAGGTTTATGGGAGATGATCAATTATATAAT
GTGATTGTAACAGCACATGCTTTTGTAATAA
TTTTTTTTATAGTAATGCCTATTTTAATT
GGGGGATTTGGAAATTGATTAGTGCCTCTTATA
TTA GGAGCCCCAGATATAGCATTTCCAC
GAATAAATAATTTAAGATTTTGACTATTACCTCCT
TCGTTATTTCTTTTAATT GTCTCTTCAATA
GTAGAAATAGGGGTAGGAGCAGGGTGAAC
TGTGTACCCTCCTTTAGCTGGATTAGAA
GGCCATGCTGGAAGATCTGTTGATTTT
GCAATTTTTTCTCTTCATTTGGCAGGTGCTT
CTTCTATTATGGGGGCAATTAATTTTATTTCTA
CAATTATTAATATACGATTTTATGGAATGACT
ATAGAAAAGGTTCCTTTATTTGTTTGATCAGTC
TTAATTACTGCTGTTCTTTTACTTCTTTCGT
TACCGGTTTTAGCAGGAGCTATTACT
ATATTATTAACTGACCGGAATTTTAATACTTCTTT
TTTTGACCCTTCTGGGGGGAGGAGATCCCAT
TTTATTTCAGCATTT

The presence of *Argiope versicolor* in Kerala expands the species' known distribution into peninsular India. Further surveys across the Western Ghats may yield more insights into its range and ecological interactions.

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REFERENCES

Chen X.E. and Gao J.C. (1990) The Sichuan farmland spiders in China. Sichuan Science and Technology Publishing House, Chengdu. 226pp.

Doleschall L. (1859) Tweede Bijdrage tot de kennis der Arachniden van den Indischen Archipel. Acta Societatis Scientiarum Indo-Neerlandicae 5(5): 1–60, pls. 1–17.

Jäger P. and Praxaysombath B. (2009) Spiders from Laos: new species and new records (Arachnida: Araneae). Acta Arachnologica 58(1): 27–51. doi: 10.2476/asjaa.58.27.

Pocock R. I. (1897) Spinnen (Araneae). In: Kükenthal, W. (ed.) Ergebnisse einer zoologische Forschungsreise in dem Molukken und Borneo. Abhandlungen der Senckenbergischen Naturforschenden Gesellschaft 23: 591-629

Tyagi K., Kumar V., Kundu S., Pakrashi A., Prasad P., Caleb J.T.D. and Chandra K. (2019) Identification of Indian spiders through DNA barcoding: cryptic species and species complex. Scientific Reports 9(14033): 1–13 & Supplement. doi: 10.1038/s41598-019-50510-8.

Yin C.M., Wang J.F., Zhu M.S., Xie L.P., Peng X.J. and Bao Y.H. (1997) Fauna Sinica: Arachnida: Araneae: Araneidae. Science Press, Beijing. 460 pp.

Younas S., Zahid M., Ullah M., Seemab S., Sajid M., Khan M. I., Attaullah S. and Khayyam K. (2024) Spider diversity in different habitats at District Mardan, Khyber Pakhtunkhwa, Pakistan. Brazilian Journal of Biology 84: e283767.

Workman T. (1896) Malaysian spiders. Belfast. pp25–104. doi: 10.5962/bhl.title.101972.

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