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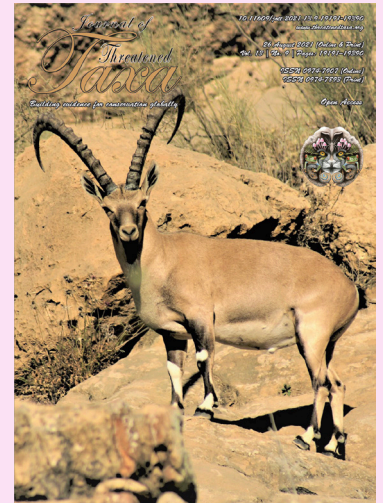
### NOTE

### FIRST RECORD OF *MANTISPILLA INDICA* (WESTWOOD, 1852) (NEUROPTERA: MANTISPIDAE) FROM THE WESTERN GHATS, INDIA

T.B. Suryanarayanan & C. Bijoy

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## First record of *Mantispilla indica* (Westwood, 1852) (Neuroptera: Mantispidae) from the Western Ghats, India

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Order Neuroptera is a heterogeneous group of holometabolous insects with varying structure and biology. There are around 6,000 species of Neuroptera reported worldwide, but from India, only 327 species of Neuroptera under 115 genera and 12 families are reported (Singh et al. 2020; Oswald 2020).

Mantispidae is a family of Neuroptera which resembles the praying mantids (Order Mantodea), because of their raptorial forelegs that are inserted at the apical end of the elongated prothorax, so they are frequently called mantid-flies (Ohl 2007). Mantispidae is represented by four extant subfamilies and 410 species worldwide, of which only 17 species under seven genera representing a single subfamily, Mantispinae are known so far from India (Chandra & Sharma 2009; Ohl 2007). Among these, only five species (*Euclimacia nodosa* (Westwood, 1847) from Kerala, *Mantispa coorgensis* Ohl, 2004 from Coorg, Karnataka, *Mantispa cora* Newman, 1838 from Malabar, Kerala, *Mantispa maindroni* Navas, 1909 from Tamil Nadu, *Mantispilla salana* (Navas, 1931) from Maharashtra (Ghosh & Sen 1977; Bhattacharjee et al. 2010; Singh et al. 2020) were reported from Western Ghats as per the available literatures. Apart from this, Bijoy & Rajmohana (2012) reported an

unidentified species of *Tuberontha* Handschin, 1961 from Western Ghats (Wayanad, Kerala). Most of the larvae of Mantispinae are parasites of Hymenoptera and spiders and have a complicated development called hypermetamorphosis (Ghosh 2000b).

The subfamily Mantispinae in India comprises *Mantispilla* Enderlein, 1910 as the predominant genera with three species (Snyman et al. 2018). *Mantispilla* was synonymised under *Mantispa* Illiger in Kugelann, 1798 by Penny (1982), but Snyman et al. (2018) recognised *Mantispilla* as a valid genus. In this study, we report *Mantispilla indica* (Westwood, 1852) for the first time from the Western Ghats as well as from Kerala.

Specimens were collected using the light trap. The collected specimens were killed by using a killing jar with 2–3 drops of ethyl acetate. Later, the specimens were dried; changes to, mounted and held on entomological pins with proper labelling. They were examined under Leica M205 stereomicroscope. The terminology of wing venation and identification followed Ghosh (2000b) and Snyman et al. (2018). The digital imaging of specimens was taken with Nikon Coolpix P900 with Raynox 250 lens. Distribution map of the species in India was plotted using QGIS 3.12.3 software. Specimens were deposited in the

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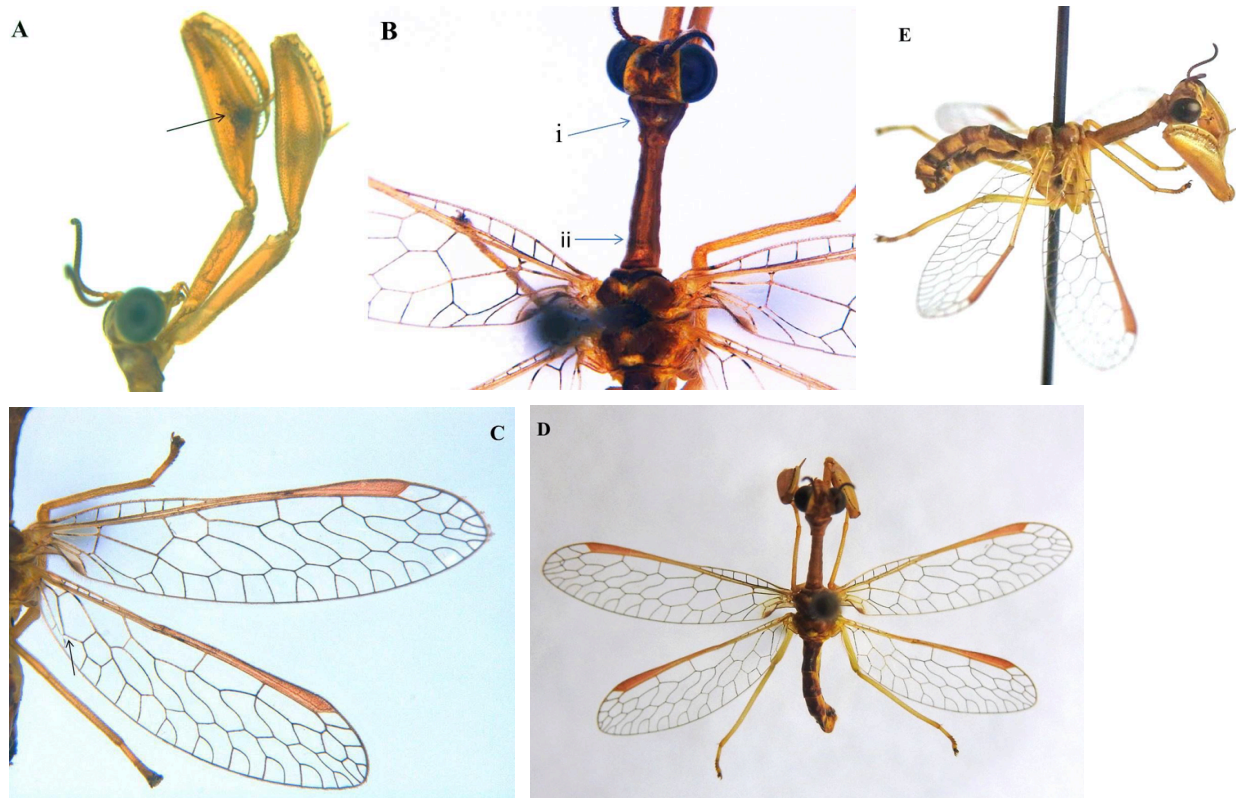


Image 1. A—Pigmentation in Forecoxae. | B-i: Absence of short stout setae on pronotum, B-ii: Velvet appearance in the mesothorax | C—Reduced crossvein between A1 and CuP | D—Habitus of *Mantispilla indica* | E—Lateral view of *Mantispilla indica*. © A,B,C—T.B. Suryanarayanan | D,E— © A. Vivek Chandran.

Table 1. Type locality, distribution and literature source of *Mantispilla* species in India.

	Species	Type locality of Species	Distribution	Literature source
1	<i>Mantispilla salana</i> (Navas, 1931)	Maharashtra (MNHN)	Maharashtra	Ghosh & Sen 1977
2	<i>Mantispilla lineolata</i> Westwood, 1852	Nepal (BMNH)	Himachal Pradesh (Kullu)	Ghosh & Sen 1977
3	<i>Mantispilla indica</i> Westwood, 1852	Kolkata (BMNH OUMNH)	West Bengal, Meghalaya, Sikkim, Assam, Karnataka, Rajasthan, Himachal Pradesh	Ghosh 1977, 1998, 2000a,b, Ghosh & Sen 1977, Sharma & Chandra 2013

MNHN—National Museum of Natural History | BMNH—British Museum of Natural History | OUMNH—Oxford University Museum of Natural History.

insect collections of Shadpada Entomology Research Lab (SERL), Kerala, India.

### *Mantispilla* Enderlein, 1910

*Mantispilla* can easily be identified from other genera by the presence of longitudinal pigmentation on the anterior or inner lateral sides of forecoxae (Image 1A), absence of short stout setae on the pronotum (Image 1 B-i), but may have a few sparsely distributed setae, velvet appearance in the mesothorax (Image 1B-ii), reduced or absence of cross-vein between A1 and CuP (Image 1 C). The type locality, distribution and literature source of *Mantispilla* species' in India are plotted in Table 1.

### *Mantispilla indica* (Westwood, 1852)

*Mantispilla indica* is characterised by a black antenna except for two basal segments. The prothorax has two brown lines in the lateral sides but without transverse ridges and vertex with a transverse brown stripe. This species is widely distributed in India, but scanning of the literature revealed no record of this species from the Western Ghats. Thus, *Mantispilla indica* forms the first record in the Western Ghats.

Specimens are brownish in colour (Image 1 D,E). They measured 10.1 mm in length from head to abdomen and 2 mm wide. Forewing is 10 mm in length and 2 mm wide. Hindwing is about 9 mm in length and 2 mm wide. The



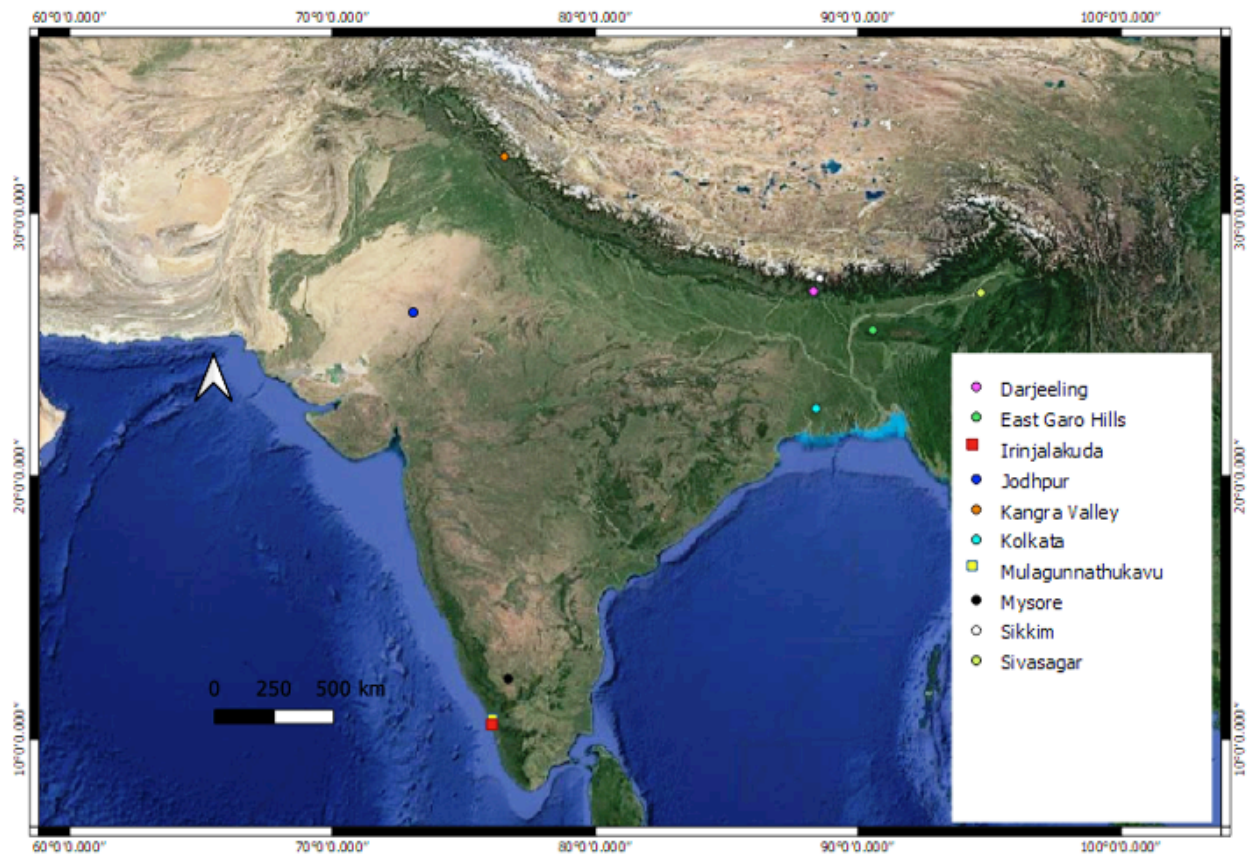


Image 2. Distribution of *Mantispilla indica* in India.

specimen characters look similar to the type specimen (Tauber et al. 2019) in Oxford University Museum of Natural History (OUMNH). Head dark yellow with brown patterns and with black flagellar segments. Prothorax brownish-yellow with two brown lines in lateral sides, but without transverse ridges. In the foreleg, a small black spot at tip anteriorly and mid and hind pair legs with dark brown claws. In both forewing and hindwing, longitudinal veins; costa, subcosta and radius dominantly yellow, radial veins are dark brown. Medial, cubital and anal veins yellow anteriorly and dark brown distally. Crossveins also dominant dark brown (Image 1C). Pterostigma elongate and red. Abdomen with alternate dark brown and light yellow bands in lateral view.

SERLNR054, SERLNR055, 18.iii.2020, 20.iii.2020, 2 females, Irinjalakuda, Kerala (10.355°N, 76.213°E), coll. Suryanarayanan T.B.; SERLNR056, SERLNR057, 03.vii.2020, 15.vii.2020, 1 female, 1 male, Mulamkunnathukavu, Kerala (10.598°N, 76.216°E), coll. Suryanarayanan T.B.

*Mantispilla indica* was reported from regions like West Bengal: Kolkata and Darjeeling, Meghalaya: East Garo Hills, Sikkim, Assam: Sivasagar, Karnataka: Mysore,

Rajasthan: Jodhpur, Himachal Pradesh: Kangra Valley (Ghosh 1977, 1998, 2000a,b; Ghosh & Sen 1977; Sharma & Chandra 2013) (Image 2). (Note: The species is also reported from the western Himalaya but exact locality details are unavailable).

Mantispidae is a family of Neuroptera with very specialized lifestyle owing to their biology and structural resemblances to the praying mantis. The taxonomy of this group is least studied either due to the short lifespan of adults or due to their very low population density (Ohl 2007). Although 410 species are reported worldwide, because of the lack of specialists in India only 17 species are reported (Ohl 2007; Chandra & Sharma 2009). This paper aims to draw the attention of researchers for future exploration studies on Mantispidae family from different parts of India.

## References

- Bhattacharjee, S., M. Ohl, S. Saha, S. Sarkar & D. Raychaudhuri (2010). *Euclimacia nodosa* (Westwood, 1847), a rare and poorly known species of Mantispidae (Neuroptera), recorded for the first time from West Bengal, India. *Zoosystematics and Evolution* 86(2): 221–224.
- Bijoy, C. & K. Rajmohana (2012). A report on some rare Neuroptera from Kerala, mimicking wasps and mantids. *Malabar Trogon* 10(1&2): 10–11.



- Chandra, K. & R.M. Sharma (2009). Checklist of Indian Neuropterids (Insecta: Megaloptera; Raphidioptera; Neuroptera). Zoological Survey of India, Central Zone Regional Centre Jabalpur, Madhya Pradesh, 22pp.
- Ghosh, S.K. (1977). Fauna of Rajasthan, India-Neuroptera. *Records of the Zoological Survey of India* 72: 309–313.
- Ghosh, S.K. (1998). Faunal Diversity of India: Neuroptera. *Zoological Survey of India State Fauna Series 3: Fauna of West Bengal*, 111–148pp.
- Ghosh, S.K. (2000a). Insecta: Neuroptera. *Zoological Survey of India, State Fauna Series: Fauna of Meghalaya* 81–115.
- Ghosh, S.K. (2000b). Neuroptera fauna of North-East India. *Records of the Zoological Survey of India. Occasional Paper No 184*: 1–179.
- Ghosh, S.K. & S. Sen (1977). Check-list of Indian Planipennia (Order Neuroptera). *Records of the Zoological Survey of India* 73(1–4): 277.
- Ohl, M. (2007). Towards a global inventory of Mantispidae—the state-of-the-art in mantispid taxonomy. *Museo Civico Di Storia Naturale Ferrara—Annali* 8: 79–86.
- Oswald, J.D. (2020). Neuropterida Species of the World. Lacewing Digital Library, Research Publication No. 1 <http://lacewing.tamu.edu/SpeciesCatalog/Main>. Accessed on [07 October 2020].
- Penny, N.D. (1982). Review of the generic level classification of New World Mantispidae (Neuroptera). *Acta Amazonica* 12(1): 209–223.
- Sharma, R. & K. Chandra (2013). Insecta Neuroptera. *Zoological Survey of India, State Fauna Series: Fauna of Karnataka* 21: 163.
- Singh, L.R.K., I. Ahmed, K. Chandra & D. Gupta (2020). Insecta: Neuroptera and Megaloptera, pp. 501–508. In: Faunal Diversity of Biogeographic Zones of India: Western Ghats. Published by the Director, Zoological Survey of India, Kolkata.
- Snyman, L.P., C.L. Sole & M. Ohl (2018). A revision of and keys to the genera of the Mantispinae of the Oriental and Palearctic regions (Neuroptera: Mantispidae). *Zootaxa* 4450(5): 501–549. <https://doi.org/10.11646/zootaxa.4450.5.1>
- Tauber, C.A., Z. Simmons & A.J. Tauber (2019). Type specimens of Neuropterida in the Hope Entomological Collection, Oxford University Museum of Natural History. *ZooKeys* 823: 1–126. <https://doi.org/10.3897/zookeys.823.30231>







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