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First Record of *Italochrysa japonica* (McLachlan, 1875) (Neuroptera: Chrysopidae) from India

***Suryanarayanan T.B. and Bijoy C.**

Shadpada Entomology Research Lab, Department of Zoology, Christ College, Irinjalakuda, Thrissur, Kerala- 680125, India.

(Email: suryantb1995@gmail.com)

Abstract

The species, *Italochrysa japonica* (McLachlan, 1875) belonging to the Chrysopidae family is recorded for the first time from India.

Keywords: *Italochrysa,Chrysopidae, India.*

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Introduction

The order Neuroptera, commonly known as 'lacewings' is a relatively small group of insects, with 6000 species known globally (Oswald, 2021). Among this, about 327 species which belongs to 115 genera and 12 families are known from India (Singh *et al*., 2020).

Chrysopidae (also known as green lacewing), globally comprises 1200 species belonging to 80 genera of which 66 species under 21 genera are known from India (Brooks and Barnard, 1990; Chandra and Sharma, 2009). The family includes three extant subfamilies; Chrysopinae, Nothochrysinae and Apochrysinae which are also recorded from India (Ghosh, 2000; Chandra and Sharma, 2009). All the species in their larval stage and adults of few genera are predators of aphids, coccids, and other soft-bodied insects. Thus, they are successfully used as biological control agents of agricultural pests (New, 1975). Even though their roles as biological control agents are well documented, their taxonomic studies are insufficient and there is a high possibility of description and redescription of new taxa from the country.

Chrysopinae is the largest of the three subfamilies of Chrysopidae in which the Belonopterygini is the most primitive tribe. It retains many plesiomorphic characters not found in other groups (Brooks and Barnard, 1990). Although 14 genera are assigned to Belonopterygini in the world, only 4 genera and 11 species are reported from India (Brooks and Barnard, 1990; Chandra and Sharma, 2009). *Italochrysa* Principi, 1946 belongs to Belonopterygini which comprises nearly 90 species in the world. Larvae of *Italochrysa* live parasitically in ant-colonies. They feed on the larvae and pupae of the ants while the adults will not feed on any insects (Principi, 1946). In India, only 7 species of *Italochrysa* (*I. aequalis aequalis* (Walker, 1853) from Karnataka, *I. carletoni* (Banks, 1939) from Himachal Pradesh and Sikkim, *I. flavobrunnea* Ghosh, 1981 from Madhya Pradesh and Tamil Nadu, *I. henryi* (Kimmins, 1938) from Kerala, *I. lefroyi* (Needham, 1909) from Assam, Bihar, Meghalaya and Punjab, *I. robusta* (Needham, 1909) from Assam, *I. talaverae* (Navás, 1928) from Sikkim) are reported (Chandra and Sharma, 2009; Oswald, 2021). Incidentally, scanning of the literature revealed that *I. japonica* (McLachlan, 1875) was never recorded from India. Thus in this study, we report *I. japonica* for the first time from India.

Materials and Methods

The specimens were collected using a sweep net. The collected specimens were killed using a killing jar with 2 to 3 drops of Ethyl acetate. Later, specimens were dried and held on entomological pins with proper labelling. The specimens were examined under Leica M205 Stereomicroscope and identified using taxonomic keys of Kim and Cho, 2015. The digital images of the specimens were taken with a Nikon Coolpix P900 with Raynox

250 lens. The specimens were deposited in the Insect Collections of Shadpada Entomology Research Lab (SERL), Kerala, India.

Results

Diagnosis

***Italochrysa* Principi, 1946**

Principi, *Boll. 1st. Ent. Univ.* 15: 86, 1946.

Italochrysa can easily be identified from other Beleonptergini by the presence of a long quadrangular intramedian cell in the forewing (Fig. 2).

***Italochrysa japonica* (McLachlan, 1875)**

McLachlan, *Trans. Royal. Ent. Soc. Lond.* 23: 182, 1875.

Italochrysa japonica is a fascinating medium-sized species (8-12 mm) characterised by red horizontal lines in pronotum and abdomen white with clamp shaped black markings at each segment (Fig. 1).

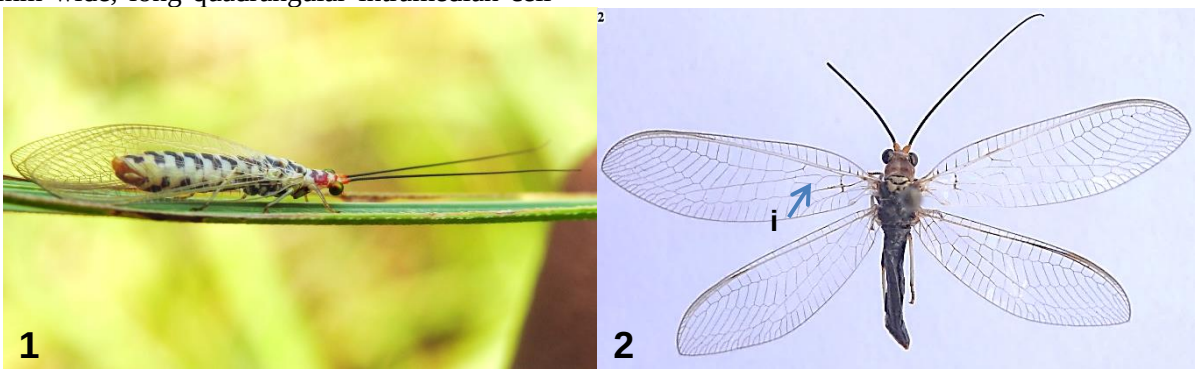
Description

Female: Head and two basal segments of antennae yellow and rest of antennal segments deep black. Length 12 mm from head to abdomen and 2 mm wide. Pronotum white with red horizontal lines. Mesonotum and metanotum white with large black spots on sides. Wings narrow elongate and veins yellowish-white. Forewing 17 mm long and 5 mm wide, long quadrangular intramedian cell present. Pterostigma long and narrow with light brown colour. Hindwing 15 mm long and 4 mm wide. Abdomen white with clamp shaped black markings at each segment. Female easily distinguished from males by their broad abdominal tip and bilobed subgenitales and a pillbox-shaped spermatheca with long coiled duct.

Remarks: The live specimen has a bright black and white colour on the dorsal side of thorax and abdomen but when the specimen gets dried the colour of the specimen completely changes to brownish-black (Figs. 1 and 2).

Materials examined: 1♀, India: Kerala, Thrissur district, Palakkal, 10°25′55.06″N, 76°20′14.72″E, 20-VIII-2020, Coll. Suryanarayanan T.B., SERLNR106; 1♀, Kerala, Kollam district, Rosemala, 8°54′53.58″N, 77°10′11.91″E, 28-III-2021, Coll. Suryanarayanan T.B., SERLNR107; 2♀, Kerala, Thrissur district, Mannuthy, 10°32′06.20″N, 76°15′43.81″E, 02-VI-2021, Coll. Suryanarayanan T.B., SERLNR108, SERLNR109.

Distribution: China, Japan, Korea and India (McLachlan, 1875; Kim and Cho, 2015; Oswald, 2021).



Figures 1-2: *Italochrysa japonica* (McLachlan, 1875): **1.** Live adult female; **2.** Habitus (i. quadrangular intramedian cell)

Discussion

Chrysopidae is a beneficial candidate of Order Neuroptera with their carnivorous habit (feeding on pests in larval and adult stages). Even though they are widely used as biological pest control agents, their taxonomy is least studied in India. Non-taxonomists get easily confused during the identification of the specimens belonging to this group mainly because of the variation in specimen colour in live and dried condition and many species are superficially similar (Brooks, 1983). Literature showed a definite lack of record of *Italochrysa japonica* from Indian region. The present article reports *Italochrysa japonica* from India for the first time. It also aims to give an eye-

opener for the researchers on future exploration studies on the Chrysopidae family and their application as biological pest control agents.

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