



E-ISSN: 2320-7078

P-ISSN: 2349-6800

JEZS 2016; 4(3): 382-384

© 2016 JEZS

Received: 20-03-2016

Accepted: 21-04-2016

**TM Chougale**

Department of Zoology,  
Bhogawati Mahavidyalaya,  
Kurukali – 416001, (MS) India.

## A new species of the genus *Apanteles* Foerster (Hymenoptera: Braconidae) from India

**TM Chougale****Abstract**

*Apanteles indica* sp. Nov. (Hymenoptera: Braconidae), a new species, has been described from India. The above species is parasitic on Geometrid Lepidopterous larva (Lepidoptera: Syntomidae). According to the key of Wilkinson (1928) *Apanteles indica* sp. Nov. runs close to *Apanteles chilocida* Viereck. by having Thorax compressed dorsoventrally, Areola absent. This species also runs close to the *Exulonyx camma* (Wilkinson) by propodeal carinae and tergite –III smooth. However, it differs from the above species by Propodeum, Tergite first, ovipositor and ovipositor sheath, terminal antennal segment and flagellar formula.

**Keywords:** *Apanteles indica*, new species, description, parasitoid, biocontrol agent, Western Maharashtra

**Introduction**

The genus *Apanteles* was erected by Foerster in 1862. It is an old and well known genus which belongs to sub family Microgastrinae and tribe Apentilini. The catalogue of *Apanteles* <sup>[1]</sup> lists 1,118 valid species and nearly 200 more have been described since then for a total of about 1,300 species. A very large number of species, 2,000 have been included recently under this genus by <sup>[2]</sup> from different parts of the world. The earliest workers on Indian Microgaratinae were <sup>[2-12]</sup>. The Braconid flies are very potential biocontrol agents of lepidopterous pests causing great damage to economically important corps. Proper identification of species helps in their effective utilization in pest control programmes<sup>1</sup>. Hence, the work was undertaken to identify and describe the Braconid species from Western Maharashtra as very little work has been done from the region.

**Materials and methods**

The species considered in this paper were collected from the Gadhinglaj, Kolhapur (Sept. 2012 to Sept. 2015) and included description of new species *Apanteles indica* sp. Nov. Cocoons were collected on Ber plants. The parasitized larvae of *Geometrid Lepidopterous larva* were reared in laboratory for emergence of parasitoids. For the study of wings, antennae, legs, propodeum, ovipositor etc mounted on slides in Canada balsam. All measurements were recorded in millimeters. The terminology adopted here is same as that of <sup>[8-10, 12]</sup> in the description of the species.

**Result and observations*****Apanteles indica* sp. Nov. (Plate – I & II)****Adult female** (Fig. 1)

Female 2.35 mm long excluding ovipositor; forewing 1.70 mm long, 0.89 mm broad; hind wing, 1.52 mm long, 0.76 mm broad; hind leg 2.52 mm long; ovipositor, 0.22 mm long, 0.08 mm wide, head, thorax black, abdomen reddish brown ventrally.

**Head**

Head black, more or less circular, head viewed from side unusually prominent below antennae, hairy, 0.50 mm long and 0.30 mm broad; vertex sparsely punctate; frons sparsely hairy, hairs small frons show deepening at antennal base; deep punctured face more or less rectangular and moderately to densely hairy, hairs long as compared to vertex and frons; ocelli in triangle, dark red, shiny, with tubercles; interorbital space 0.11 mm; interocellar space 0.11 mm; eyes large, black, convex, pubescent, elliptical, shiny; clypeus, yellow, flat, plate like; labrum yellowish, semicircular; mandible black, strong, curved.

**Correspondence****TM Chougale**

Department of Zoology,  
Bhogawati Mahavidyalaya,  
Kurukali – 416001, (MS) India.

**Antenna (Fig. 2, 3)**

Antenna 16 segmented, 2.40 mm long, including scape, pedicel (Fig. 2) and flagellum, dark brownish black, hairy; scape, 0.12 mm long, 1.00 mm wide; pedicel, 0.11 mm long, 0.09 mm wide; flagellum, 2.17 mm long, 0.12 mm wide, placodes arranged in three longitudinal rows, last antennal segment (Fig. 3) conical, 0.11 mm long, 0.04 mm wide, four penultimate segments shorter than terminal.

**Flagellar formula**

2 L/W = 3.20, 8 L/W = 3.75, 14 L/W = 2.25; L 2/14 = 1.77, W 2/14 = 1.25.

**Thorax**

Thorax compressed dorsoventrally, wider between the tegulae, 1.00 mm in length, 0.46 mm broad, black, densely hairy and ovoid, broad at anterior end, narrow towards posterior end; pronotum large, convex, semicircular; scutellum convex, large, rugose; tegula slightly depressed due to wing base, distance between tegulae 0.66 mm, height of thorax at tegula 0.68 mm; mesosternum broad, plate like or shield like; Propodeum (Fig. 4) 0.24 mm long and 0.61 mm broad, weak short median longitudinal and basal transverse carinae present on each side, similarly, lateral longitudinal weakly branched carinae present on each side; spiracles elliptical, no network of carinae, rest portion smooth.

**Fore Wing (Fig. 5)**

1.70 mm long, 0.89 mm broad, straight, transparent, membranous, hairy, narrow basally, broad apically; costa, thick, hairy, brown, 0.93 mm long; stigma, light red testaceous, 0.35 mm long and 0.13 mm broad; metacarpus, thick, black, 0.68 mm long, stigma half the length of metacarpus; radial, medial and parallel seen poorly, 0.69 mm, 0.91 mm and 0.72 mm long respectively; mediocubitus 0.73 mm, first anal 0.84 mm long, lateral 0.26 mm long, cubitus 0.16 mm long, recurrent vein 0.14 mm long, second rediomedial 0.13 mm long.

**Hind Wing**

Smaller than fore wing, 1.52 mm long, 0.76 mm broad, straight, transparent, hairy except subcostal margin; subcostella 0.83 mm long, intercubitella 0.79 mm long, remaining veins reduced, vanal lobe leaf like, convex with tuft of hairs at base, basella smaller than nervellus.

**Hind Leg (Fig. 6)**

Length 2.52 mm long, longer than body, hairy; coxa black except at apex, stout, rugose, triangular, hairy, 0.48 mm long; trochanter curved, brown, hairy, short, 0.28 mm long; femur slightly curved, long, stout, hairy, broad at base and narrow posteriorly, not shining, 0.45 mm long; tibia 0.44 mm long; tibial spurs (Fig. 6) unequal, brownish black, hairy, pointed, outer large 0.18 mm long, inner short 0.13 mm long; basitarsus long, slender, densely hairy, 0.45 mm in length; tarsal segments second, third, fourth and fifth, 0.15 mm, 0.12 mm, 0.10 mm, 0.08 mm long respectively, all hairy; claw short, 0.070 mm long; all coxae dark.

**Abdomen**

0.92 mm long, excluding ovipositor, basally narrow and broad apically, dark brown; first abdominal tergite (T<sub>1</sub>) (Fig. 7) brownish black, rugose, with basal median shallow groove, 'U' shaped notch at middle and C shaped lateral arch at base, first tergite broader than at base, 0.36 mm long, 0.19 mm broad; second tergite (T<sub>2</sub>) broader than long, 0.40 mm broad,

0.20 mm long, rugose; third tergite yellowish brown, rugosopunctate, 0.38 mm broad, 0.20 mm long, second and third tergite (T<sub>3</sub>) equal in size; ovipositor (Fig. 8) considerably longer than sheath, short, hairy, brownish black, 0.22 mm long, 0.08 mm wide, ovipositor considerably broader at the base and pointed towards tip; ovipositor sheath straight, 0.19 mm long, without hairs, ovipositor sheath considerably shorter than abdomen.

**Colour**

Dark brown: Abdomen basal segments,  
Brownish black: Antenna, spurs, ovipositor,  
Raddish brown: Abdomen,  
Black: Head, thorax, coxa, stigma, abdominal last two segments.

**Male**

Male 2.13 mm long, smaller than female, resembling the female except sexual characters.

**Cocoon**

Gregarious, cottony white, cocoon 3.10 mm long, 0.12 mm broad, a colony contain 40 - 50 cocoons.

**Host**

Geometrid Lepidopterous larva on Ber.

**Host plant**

Ber, *Ziziphus jujuba*

**Holotype**

Female, India, Maharashtra, coll. 20-IX-2013, Gadhinglaj, M. S., Chougale T. M., antenna, wings, leg, propodeum, tergites, ovipositor on slide labeled as above.

**Paratype**

Male 22, female 34, sex ratio (M: F) 1: 1.54, coll. T. M. Chougale, Sept. to Feb., same data as above.

**Etymology**

*Apanteles indica* sp. Nov. reported first time from India hence the name.

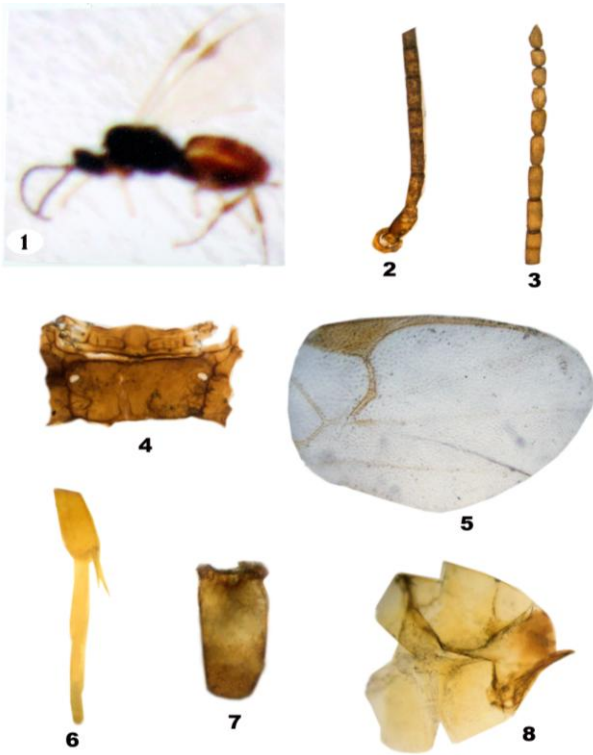
**Distributional record**

Maharashtra: ♂ 20, ♀ 35 Bambawade (Kolhapur), 18-IX-2013; ♂ 27, ♀ 42 Ajara (Kolhapur), 13-IX-2014; ♂ 18, ♀ 30 Palus (Sangli), 17-XI-2014.

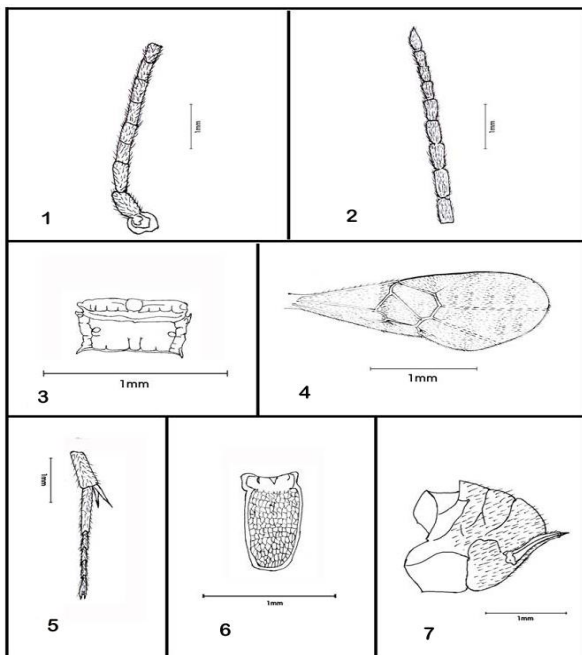
**Remarks**

According to the key of Wilkinson (1928) *Apanteles indica* sp. Nov. runs close to *Apanteles chilocida* Viereck. by having Thorax compressed dorsoventrally, Areola absent. This species also runs close to the *Exulonyx camma* (Wilkinson) by propodeal carinae and tergite -III smooth. However, it differs from the above species by following characters:

- (1) Propodeum with weak and short median longitudinal carina, basal transverse carinae unbranched at each side, lateral longitudinal weakly branched carinae on each side.
- (2) Tergite first obliquely parallel sided,
- (3) Ovipositor considerably broader at base and pointed at tip,
- (4) Ovipositor considerably longer than ovipositor sheath,
- (5) Terminal antennal segment conical, four penultimate segments equal in length.
- (6) Flagellar formula:  
2 L/W = 3.20, 8 L/W = 3.75, 14 L/W = 2.25; L 2/14 = 1.77, W 2/14 = 1.25.



**PLATE – I** (Figs. 1 - 8) *Apanteles indica* sp. nov. Fig. 1 : Adult female. Fig. 2 : Basal antennal segments. Fig. 3 : Antennal terminal segments. Fig. 4 : Propodeum. Fig. 5 : Forewing (stigma & cells). Fig. 6 : Hind tibial spurs. Fig. 7 : Tergite 1st and 2nd. Fig. 8 : Abdominal tip with ovipositor and ovipositor sheath.



**Plate - II (Figs. 1-7) *Apanteles indica* sp. nov.**  
 Fig. 1 : Basal antennal segments. Fig. 2 : Antennal terminal segments.  
 Fig. 3 : Propodeum. Fig. 4 : Forewing (stigma & cells). Fig. 5 : Hind tibial spurs. Fig. 6 : Tergite 1st and 2nd. Fig. 7 : Abdominal tip with ovipositor and ovipositor sheath.

**Acknowledgement**

Authors are thankful to Principal, Bhogawati Mahavidyalaya, Kurukali for providing necessary facilities.

**References**

1. Shenefelt RD. Hymenoptera Catalogue, part 7, Braconidae. 1972; 4:429-668.
2. Cameron P. Hymenoptera Orientalis or contribution to

- knowledge of the Hymenoptera of Oriental Zoological Region Part V. Mem. & Proc. Manchester Lit. Phil. Soc. 1897; 41(4):1-144.
3. Wilkinson DS. A revision of the Indo-Australian species of the genus *Apanteles* (Hymenoptera: Braconidae) part I Bull. Ent. Res. 1928; 19:79-105.
4. Wilkinson DS. A revision of the Indo-Australian species of the genus *Apanteles* (Hymenoptera: Braconidae) part II. Bull. Ent. Res. 1928; 19:109-146.
5. Bhatnagar SP. Studies on *Apanteles* Forester (Vipionidae: Parasitic hymenoptera) from India. Indian J Ent. 1948; 10:133-203.
6. Rao SN. Key to the Oriental species of *Apanteles* Foerster (Hymenoptera). Proc. Nat. Acad. Sci., India. H. 1961; 31:32-46.
7. Nixon GEJ. A reclassification of the tribe Microgasterini (Hymenoptera: Braconidae). Bull. Br. Mus. Nat. Hist. [ent]. 1965; 2:1-284.
8. Mason WRM. The polyphyletic nature of *Apanteles* Forester (Hymenoptera: Braconidae), a phylogeny & reclassification of Microgastrinae. Ent. Soc. Canada. 1981; 115:1-147.
9. Sathe TV, Bhoje PM. Biological pest control. D.P.H., New Delhi. 2000, 1-122.
10. Sathe TV, Inamdar SA, Dawale RK. Indian pest parasitoids. D. P. H., New Delhi. 2003, 1-145.
11. Chougale TM. Biosystematics of Ichneumonid and Braconid Parasitoids from Agroecosystems of Western Maharashtra including Ghats. (Ph. D. Thesis, Shivaji University, Kolhapur). 2009, 1-288.
12. Sathe TV, Chougale TM. Hymenopterous biopesticides and their preliminary biocontrol potential from Western Maharashtra including Ghats. Biolife. 2014; 2(4):1254-1261.