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Research Article

A new species of genus *Cassidibracon* Quicke (Hymenoptera: Braconidae: Braconinae) with new host record from India

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ABSTRACT: A new species, *Cassidibracon repens* Gupta sp. n. from Karnataka, India, is described and illustrated along with the host caterpillar and cocoons and differentiated from other closely allied Indian species. The species was reared from cocoons of a Pyralidae caterpillar which is a new host record for *Cassidibracon*. The main diagnostic characters include - second, third and fourth metasomal tergites with midlongitudinal carina; ovipositor length 0.53× length of gaster; OOL/POL = 2.5; eye length/malar space = 3.33; median flagellomeres approximately 2−2.27× longer than wide and antenna with 24 flagellomeres. Revised Key to the Oriental species of the Genus *Cassidibracon* Quicke is also provided.

KEY WORDS: *Cassidibracon,* Larval Parasitoid, Pyralidae

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INTRODUCTION

The genus *Cassidibracon* Quicke is distributed in the Oriental and Afrotropical region. The detailed description of *Cassidibracon* is given in Quicke (2007). Four species *viz*. *C. indicus* Narendran and Rema, *C. malabaricus* Narendran, *C. sumodani* Narendran and Madhavikutty (Narendran *et al*., 1994), and *Cassidibracon gracillariae* Quicke *et al.,* (2012) are known from the Indian region. Gracillariidae was the first host recorded for the genus *Cassidibracon* (Quicke *et al*., 2012). This paper deals with description of a new gregarious species of pyralid larval parasitoid, *Cassidibracon repens* Gupta sp. n. from Karnataka, India, along with illustrations of the wasp as well as the host caterpillar and cocoons. Pyralidae is a new host record for the genus *Cassidibracon*. A revised key to the Oriental species of the genus *Cassidibracon* is also provided which is modified after Narendran *et al*., 1994 and Quicke *et al*., 2012.

MATERIAL AND METHODS

During surveys for parasitic Hymenoptera from southern India, the parasitised Pyralidae caterpillars were collected from Kunigal forests, Karnataka and later reared in the laboratory. The wasp images were taken using Leica M 205A stereo zoom microscope with Leica DFC 420 inbuilt camera (version 3.8). The specimens are deposited in the National Bureau of Agricultural Insect Resources (NBAIR), Bangalore, India.

Species Description

Cassidibracon repens Gupta, sp. n.

Figures 1-7 (A−G).

Description. Female

Figures 1 and 2. Measurements in mm. Body length. 3.12 (Holotype, habitus); fore wing length 2.59; antenna length 2.43.

Fig. 1. *Cassidibracon repens* sp. n. A - Habitus.

Paratypes (mean) - Body length. Habitus: 3.13, 3.32, 3.56 (3.34); dorsal view: 2.38, 2.34, 2.64 (2.45).

Fig. 2. ***Cassidibracon repens*** **sp. n. B - Dorsal view.**

Colouration

Antenna coloration (including scape and pedicel) orange-brown becoming dark brown on apical half. Head yellow, stemmaticum black, ocelli dark brown, eyes black, tip of mandibles black, occiput with brown infuscation. Mesosoma largely yellow; dark brown on lateral lobes, and on anterior of middle lobe of mesoscutum, brown colouration all along the median longitudinal line. Tegula yellow brown. Wing veins and pterostigma brown. Mesopleuron yellow brown except posterior one third black. Metasoma yellow with black median patch (leaving lateral edges) extending over tergites 2−5 (apical one-third of second tergite, third and fourth tergite completely in the middle, and faintly on anterior one-third of fifth tergite). Legs yellow including coxae, hind tarsi with brown infuscation, apical segment of all tarsi dark brown. Ovipositor pale yellow.

Head (Figure C)

Head transverse, head length: head width = 0.44: 0.64, 1.45× wider than long. Face shiny with small shallow pits and midlongitudinal ridge, vertex smooth with dense setae, medium pilosity around clypeus, setae concentrated towards the eye margins beside clypeus. Antenna with 24 flagellomeres. Median flagellomeres approximately 2−2.27× longer than wide. Length: scape - 0.09; pedicel - 0.06; annellus - 0.018; flagellomeres 1−3 subequal (0.11; 0.12; 0.11). Height of eye: width of head: width of face = 0.30: 0.64: 0.32. Intertentorial distance (0.13) 1.3× tentorio-ocular distance (0.10). POL: transverse diameter of posterior ocellus: shortest distance between posterior ocellus and eye = 0.06: 0.02: 0.15. Eye length: malar space = 0.30: 0.09.

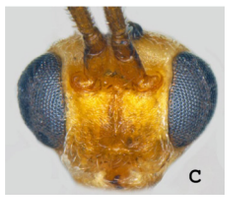

Fig. 3. ***Cassidibracon repens*** **sp. n. C - Head, frontal view.**

Mesosoma (Figure D)

Mesosoma: Length: width = 0.97: 0.86, 1.13× longer than wide. Mesoscutum densely setose. Presutellar groove with 6−7 deep crenulae. Scutellum densely setose, setae on apical edge longer than those on mesoscutum. Propodeum shiny, sparsely pubescent in basal half, midlongitudinal carina present in apical two-third, bifurcated at basal tip merging into smooth and shining median patch. Two short transverse carinae (on each side) originating from median carina and travelling upwards, transverse carinae and rugosity confined in the brown median area, lateral sides with light brown colouration coloration and punctate sculpture. Mesopleuron shallowly pitted, setae denser at anterior and posterior edges (Fig. F).

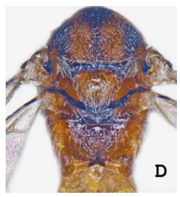

Fig. 4. ***Cassidibracon repens*** **sp. n. D - Mesosoma.**

Wings (Figure E)

Lengths of fore wing veins r: 3-SR: SR1 = 0.11: 0.28: 0.54. 1-SR+M = 0.35.

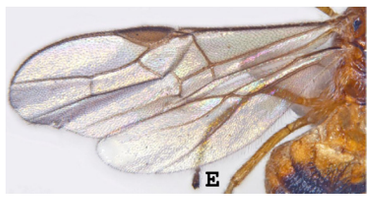

Fig. 5. ***Cassidibracon repens*** **sp. n. E - Wings.**

Legs

Length of hind femur: tibia: tarsus = 0.57: 0.76: 0.56. Hind tibia 9× longer than its maximum width.

Fig. 6. ***Cassidibracon repens*** **sp. n. F - Mesopleuron.**

Metasoma (Figure G)

Metasoma 1.85× longer than ovipositor. Tergites coarsely rugose (not evident in first tergite due to pale colouration). First tergite with basal longitudinal groove and

median smooth triangular depression in apical half. Second tergite with light yellow median field bordered by anteriorly converging sublateral carina, coarsely rugose, apical one-third with black infuscation and coarse longitudinal striations. Second tergite 1.99× wider than medially long. Midlongitudinal carina extending from second tergite (little below the basal margin) up to the fourth tergite. Third tergite medially black with coarse longitudinal striations, 3.43× wider than medially long. Fourth tergite with coarse longitudinal striations. Remaining tergites shallowly punctate. Exserted ovipositor length = 0.63. Ovipositor length 0.54× longer than gaster.

Fig. 7. *Cassidibracon repens* sp. n. G - Metasoma.

Males

Not known.

Host

Unidentified Pyralidae (Figures H and I). Cocoons formed gregarious (Figures J and K).

Fig. 8. H- Pyralidae host caterpillar.

Fig. 9. I - Caterpillar carcass with cocoon mass.

Fig. 9. J - Cocoons.

Fig. 10. K - Cocoons.

Material examined

Holotype Female, India, Karnataka, Kunigal, 14.xii.2011, ex. unidentified Pyralidae, leg. Ankita Gupta. Code: NBAII/Brac/Cassid/141211. NBAIR

Paratypes

6 females, same data as holotype.

Etymology

The species name is of Latin origin (‘repens’ meaning ‘recent’) and is based on the recent discovery of this species.

Comments

This new species comes close to *C. malabaricus* in the Key provided by Narendran *et al*., 1994 in having midlongitudinal carina of propodeum longer than half of the median length of propodeum but differs in following characters: *Cassidibracon repens* sp. n. - second, third and fourth metasomal tergites with midlongitudinal carina; ovipositor length 0.53× length of gaster; OOL/POL = 2.5; eye length/malar space = 3.33; median flagellomeres approximately 2−2.27× longer than wide; antenna with 24 flagellomeres, while for *C. malabaricus*- second tergite with a midlongitudinal carina; ovipositor short about one third length of gaster; OOL/POL = 3.3; eye length/malar space = 1.67; median flagellomeres approximately 2.5× longer than wide; antenna with 21 segments (including scape, pedicel and flagellomeres).

Revised Key to the Genus *Cassidibracon* Quicke (modified after Narendran *et al*., 1994 and Quicke *et al*., 2012)

1. Propodeum with complete midlongitudinal carina. Body yellowish brown……2

– Propodeum with incomplete midlongitudinal carina. Body brown or blackish brown.....4

2. Metasoma entirely yellowish. Face with midlongitudinal ridge which is produced to form knob between antennal sockets [Afrotropical]..... *castus* Quicke

– Metasoma with distinct pattern of dark marks. Face without midlongitudinal ridge [Oriental].....3

3. Antenna with 21 flagellomeres. Dark posterior marking on second tergite and anterior of fourth tergite entire.....*sumodani* Narendran and Madhavikutty

– Antenna with 24 flagellomeres. Dark posterior marking on second tergite and anterior of fourth tergite completely divided medially by pale brown yellow zone giving rise to ‘H’-shaped pat tern..... .....*gracillariae* Quicke.

4. Midlongitudinal carina of propodeum shorter than half of it; T2 without a midlongitudinal carina; ovipositor long nearly as long as gaster …….*indicus* Narendran and Reema

– Midlongitudinal carina of propodeum longer than half of it……...…….5.

5. T2 with a midlongitudinal carina; ovipositor short about one third length of gaster; antenna with 21 segments (including scape and pedicel) ……..……*malabaricus* Narendran

– T2, T3 and T4 with a midlongitudinal carina; ovipositor longer than in the above case, 0.53× length of gaster; antenna with 24 flagellomeres …….....*repens* sp. n.

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