



# First Report of *Brachymeria apicicornis* (Cameron) (Hymenoptera, Chalcididae) on the Curry Leaf Tortoise Beetle *Silana farinosa* (Boheman) (Coleoptera, Chrysomelidae, Cassidinae, Cassidini)

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## Abstract

*Silana farinosa* (Boheman) (Coleoptera, Chrysomelidae, Cassidinae, Cassidini) is reported as the first confirmed host of *Brachymeria apicicornis* (Cameron) (Hymenoptera, Chalcididae). *Brachymeria apicicornis* is 2.60 to 3.70 mm long, black with lemon yellow tegula, fore- and mid tibiae yellow with a black line, hind tibia black with apex and base dorsally pale yellow, and tarsi yellow, head with post orbital carina indistinct, and mesosoma with closely placed, deep, circular punctures. This is the first report of a natural enemy of the curry leaf tortoise beetle *S. farinosa* in India.

**Keywords:** parasitoid, *Murraya koenigii*, Rutaceae, natural enemy, condiment, chalcid, biocontrol

## Introduction

*Brachymeria apicicornis* was originally described by Cameron in 1911 in *Oncochalcis* Cameron, from Kuching in Malaysia. Joseph *et al.* (1973) misspelled the species epithet as '*apicornis*' and transferred it to *Brachymeria* Westwood. It is distributed in India, Indonesia (Java, Sulawesi) and Malaysia (Sarawak, Borneo) (Narendran, 1986; 1989). In India, it is known from Bihar (Narendran, 1989), Karnataka, Puducherry and Tamil Nadu (Gowri *et al.*, 2016) and Kerala (Narendran, 1986). Ferrière (1940) recorded a single specimen of *B. apicicornis* as a possible hyperparasitoid of *Ptychomyia* Brauer & von Bergenstamm, *Cadurcia* Villeneuve (both Diptera, Tachinidae) or *Goryphus* Holmgren (Hymenoptera, Ichneumonidae) parasitizing the coconut leaf moth *Artona* (= *Palmartona*) *catoxantha* (Hampson) (Lepidoptera, Zygaenidae) in Java, Indonesia. The curry leaf tortoise beetle *Silana farinosa* (Coleoptera, Chrysomelidae, Cassidinae, Cassidini) was originally described from Sri Lanka

by Boheman in *Cassida* Linnaeus in 1862. Spaeth (1914) erected the monotypic genus *Silana* to accommodate the species. It was first reported from India in 2003 by Premila *et al.* *Silana farinosa*, occurring in Sri Lanka (Peries 1926; Talagala and Manawadu, 1979), India (Premila *et al.* 2003, Pathour *et al.*, 2021), Malaysia (Mohamedsaid and Sajap, 1996; Sajap and Mohamedsaid, 1997), and the Malaysian territory of Borneo (Mohamedsaid, 2006), is the most important pest of the curry leaf plant *Bergera koenigii* L. (= *Murraya koenigii* (L.) Sprengel) Sprengel (Rutaceae), grown throughout south east Asia for its green leaves used as a condiment for flavouring food (Sastri, 1962). Larvae and adults of *S. farinosa* heavily defoliate the plant and make the leaves unfit for consumption. Talagala and Manawadu (1979) recorded unspecified egg parasitoid and a chalcid pupal parasitoid on *S. farinosa* in Sri Lanka. Sajap and Mohamedsaid (1997) reported *Brachymeria* sp. on pupa in Malaysia. No natural enemy of *S. farinosa* was so far known from India.

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## Materials and methods

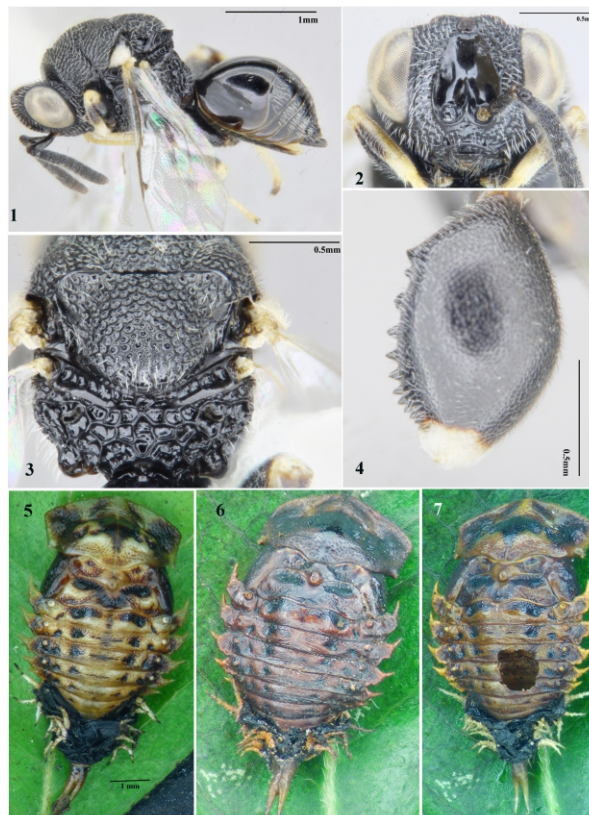
During our studies on the curry leaf tortoise beetle, life stages collected at Vellayani, Kerala, India (8°25'46.3"N, 76°59'07.8"E, 39 m elev.) were reared in the laboratory. Adults of the parasitoid emerged from the field collected pupae (Figs 5 – 7) of *S. farinosa* were studied. Attempts were also made to collect the parasitoid by net sweeping. Images of *B. apicicornis* were captured using a Canon EOS 1300 D camera mounted on a Leica M 205 C stereo binocular microscope and those of *S. farinosa* pupae were taken using a Canon Power Shot S70 camera attached to a Leica Mz 9.5 stereo binocular microscope. Voucher specimens of *B. apicicornis* (NIM/NBAIR/HYM/BRAC/APIC/130922-1 to NIM/NBAIR/HYM/BRAC/APIC/130922-2) are deposited in the Indian Council of Agricultural Research – National Bureau of Agricultural Insect Resources (ICAR-NBAIR), Bengaluru.

## Results and discussion

The parasitoid was identified as *B. apicicornis* (Figs 1 – 4). Parasitized pupae (Figs 6, 7) turned dark brown and the emergence of the parasitoid was delayed by more than a week over and above the normal pupal period of *S. farinosa*. Adult females of *Brachymeria apicicornis* emerged from the pupae on 27 August 2022, 11 November 2022 and 1 February 2023. Adults of *B. apicicornis* were also collected by net sweeping at Attingal, Thiruvananthapuram district and Neelamperur in Alappuzha district. No male was observed. The adult parasitoid emerged through an exit hole of 1.25mm to 1.52mm diameter (mean=1.32mm, n=6) on the abdominal tergites III to V of the host pupa (Fig. 7). Of the 79 pupae collected at Vellayani, 24 (30.4%) were parasitized.

*Brachymeria apicicornis* is 2.60 mm to 3.70 mm (mean=3.18 mm, n=9) long, black with lemon yellow tegula; hind femur apically yellow (Fig. 4), fore- and midtibiae yellow with a black line; hind tibia black with apex and base dorsally pale yellow; and tarsi yellow (Fig. 1); head (Fig. 2) with post orbital carina indistinct; and mesosoma (Figs 1, 3) with closely placed, deep, circular punctures.

This is the first confirmed report of a host of *B. apicicornis* as well as a natural enemy of *S. farinosa* in India. Possibilities of its utilization in the management of the curry leaf tortoise beetle has to be further explored since application of chemical insecticides on the leaves is not advisable as it is directly consumed.



Figs 1 – 4. *Brachymeria apicicornis*. 1. Female, habitus, 2. Head, frontal view, 3. Mesosoma, dorsal view, 4. Metafemur, lateral view; 5 – 7. Pupa of *Silana farinosa*. 5. Unparasitized pupa, 6. Parasitized pupa, note the dark color, 7. Exit hole of *B. apicicornis* on abdominal tergites III–V of pupa.

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## Author Contribution Statement

SMS collected specimens, recorded observations and prepared the manuscript. RJ collected specimens and prepared the illustrations of *B. apicicornis*. SK collected specimens.

## Conflict of Interest

Authors declare no conflict of interest.

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