



Research Note

Pupal parasitization of *Anaphaeis aurota* Fabricius (Lepidoptera: Pieridae) infesting *Capparis decidua* (Forsk.) by *Brachymeria albicrus* (Klug) (Hymenoptera: Chalcididae)

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ABSTRACT: During the surveys conducted in CIAH Farm and in Desnok, Bikaner in the month of November and December, 2010, *Capparis decidua* (Forsk.) commonly known as *kair* was found to be heavily infested with *Anaphaeis aurota* Fabricius commonly known as Pioneer or Caper white. *C. decidua* is a bushy shrub used in landscape gardening, afforestation and reforestation in semi desert and desert areas and it provides assistance against soil erosion. The grown caterpillars of *A. aurota* easily strip off the branches, devouring leaf after leaf causing great damage. The pupae of *A. aurota* were found to be parasitized with *Brachymeria albicrus* (Klug). *B. albicrus* has been earlier reported from southern India, Orissa and from Haryana as *Brachymeria kurukshetraensis* Farooqi, Husain & Ghai. *B. kurukshetraensis* Farooqi is a junior synonym of *B. albicrus*. The mean per cent parasitization of Pioneer butterfly by *B. albicrus* at CIAH farm and at Desnok, Bikaner was 49.5 and 47.5 respectively and the mean per cent emergence of the mature adult parasitoids from the parasitized pupae was 15.5 and 14.0 respectively.

KEY WORDS: *Capparis decidua*, *Anaphaeis aurota*, *Brachymeria albicrus*, pupal parasitoid

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Capparis decidua (Forsk.) commonly known as *kair* is a spiny bushy shrub in dense tufts, 4-5 m high, commonly used in landscape gardening, afforestation and reforestation in semi desert and desert areas and it prevents soil erosion. It is well distributed in the arid regions of north-west India covering parts of western Rajasthan and drier parts of Gujarat, Haryana and Punjab. It is extremely drought-resistant and tolerates frost. The bitter roots, root bark and fruits are used in preparation of medicines. Root bark and stem contain a spermidine alkaloid, isocodonocarpine, effective in treatment of asthma, inflammation and cough (Ahmad *et al.*, 1989). It is mainly used for food, fodder, fuel and timber (Orwa *et al.*, 2009) as it produces hard, heavy and termite resistant timber. Fruits are rich in proteins, carbohydrates and minerals.

Capparis decidua was found to be heavily infested with *Anaphaeis aurota* Fabricius, commonly known as the Pioneer or Caper white, in various parts of Rajasthan. *A. aurota* is a dry zone butterfly, found in the savannahs, scrub, dry and deciduous forests. The caterpillars mainly feed on *Capparis decidua*, *C. pyrifolia*, *C. rheedii*, *C. sepiaria*, *C. spinosa*, *C. zeylanica*, *Cadaba fruticosa* and *Maerua oblongifolia* (Kunte, 2000).

During the surveys conducted in Rajasthan, *Brachymeria albicrus* (Klug) was found parasitizing *A. aurota* infesting *C. decidua*. The present investigation was carried out to find out the mean per cent parasitization of the *A. aurota* by *B. albicrus* in Rajasthan and Karnataka, India.

Surveys were carried out in the CIAH Farm, Bikaner, in Desnok, Bikaner and at Bangalore, Karnataka during 2010 for the pest infestation on *C. decidua*. Collection of pupae was done in the first and third week of November and December respectively. A total of 200 pupae were hand collected from *C. decidua* from each locality and kept in separate jars covered with clean muslin cloth. The pupae of *A. aurota* were then observed for the parasitoid emergence. The collection of *A. aurota* larvae was also done from Bannerghatta, Bangalore to study the seasonal and colour variation due to geographic distribution of the pest. The pest and parasitoids were identified in the Biosystematics, Biodiversity & Biosafety Laboratory at NBAIL, Bangalore using the systematic keys provided by Kunte (2000) and Narendran (1989) respectively.

Table 1. Mean percent parasitization of *Anaphaeis aurota* Fab. by *Brachymeria albicrus* (Klug) at CIAH Farm and Desnok, Bikaner

Date of collection of pupae	Total number of <i>A. aurota</i> pupae collected	Percent parasitization of <i>A. aurota</i> (CIAH farm)	Percent emergence of <i>B. albicrus</i> in laboratory (CIAH farm)	Percent parasitization of <i>A. aurota</i> (Desnok, Bikaner)	Percent emergence of <i>B. albicrus</i> in laboratory (Desnok, Bikaner)
01.11.10	50	60	16	56	14
15.11.10	50	44	14	48	14
01.12.10	50	42	14	40	12
15.12.10	50	52	18	46	16
Mean		49.50	15.50	47.50	14.00

During the investigation it was found that the fully grown caterpillars of *A. aurota* easily stripped off the branches, devouring leaf after leaf causing great damage. Due to seasonal variation, geographical distribution and sexual dimorphism, there was a marked difference in colour of wings and thickness of veins of *A. aurota*. The females were larger with thicker and broader veins, apex and outer margins, while the males had thinner black bands.

The pupae of *A. aurota* were found to be parasitized by *B. albicrus*. This is the first report of this parasitoid parasitizing *A. aurota* infesting *C. decidua* from Rajasthan. *B. albicrus* has been earlier reported from southern India (Narendran, 1989), Orissa, and Haryana as *Brachymeria kurukshetraensis* Farooqi, Husain and Ghai. Very recently *B. kurukshetraensis* is considered as a junior synonym of *B. albicrus* (Narendran and Khan, 2011). *B. albicrus* is also a potential pupal parasitoid of many lepidopterans viz., *Danaus chrysippus* (Linnaeus) (Nymphalidae), *Earias vittella* Fabricius, *E. insulana* Boisduval (Nolidae), *Pieris rapae* Linnaeus (Pieridae) and *Acraea acerata* Hewitson (Nymphalidae) (Noyes, 2011). The female of *B. albicrus* can be identified with apex of scutellum distinctly bilobed with dense silver pubescence on two lobes; hind femur red with black patch on outer disc; hind tibia yellow with base and ventro-lateral margin black (Narendran, 1989).

The mean per cent parasitization of *A. aurota* by *B. albicrus* at CIAH farm and at Desnok, Bikaner was 49.5 and 47.5 respectively and the mean per cent emergence of the adult parasitoids from the parasitized pupae was 15.5 and 14.0 respectively (Table 1). The pupae which did not yield either parasitoid or transformed to adults were later dissected and it was observed that from both the localities such pupae contained malformed

parasitoids which could not emerge out. The mean per cent pupal malformation at CIAH Farm and at Desnok, Bikaner was 34.0 and 33.5 respectively.

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