Cotesia flavipes Cameron parasitizing Chilo partellus (Swinhoe): Host-age dependent parasitism, cocoon formation and sex ratio

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ABSTRACT: Investigations on parasitization of different host ages (5 to 20 days old) of Chilo partellus larvae by Cotesia flavipes were carried in the laboratory conditions at 27±2°C and 75±5 per cent relative humidity. Higher parasitization and cocoon formation was recorded on the 17 and 20 day old larvae of C. partellus with 82.61 and 82.46 per cent parasitization and 43.09 and 42.70 cocoon formation, respectively while no parasitization and cocoon was recorded in 5 day old larvae. The 11 and 14 day old larvae were highly preferred recording significantly more female progeny and on par with 17 and 20 days old larvae.

KEY WORDS: Cotesia flavipes, host age, Chilo partellus, parasitism, cocoon formation, sex ratio

The data observed on per cent parasitization (Table 1) showed that preference of 17 and 20 days old larvae of C. partellus was maximum with highest parasitization, 82.61 and 82.46 per cent respectively, followed by 72.82, 45.41 and 34.79 per cent in 14, 11 and 8 days old larvae respectively. It is also evident from the Table 1 that no parasitization was observed in 5 days old larvae of C. partellus. The parasitization increased from 34.79 to 82.61 per cent with the increase in the age of larvae. Most of the treatments differ significantly to each other while T5 (17 days old larvae) and T6 (20 days old larvae) were found statistically at par. Our investigation corroborates with the report of many workers among them Shi et al. (2002) observed that C. plutellae could parasitize larvae of all four instars of Plutella xylostella, but preferred 2nd and 3rd instars. Similarly, Shekharappa and Kulkarni (2003) observed that third instar larvae of C. partellus were most suitable for parasitization by C. flavipes.

The data recorded on number of cocoons (Table 1) showed that 17 days old larvae of C. partellus yielded maximum number of cocoons (43.09 per larva), followed
by (20, 14, 11 and 8 days old larvae (42.70, 27.33, 16.19 and 12.5 cocoons per larvae respectively). It is also evident from the Table 1 that no cocoons were formed in 5 days old larvae of *C. partellus*. Most of the treatments differed significantly to each other while, T5 (17 days old larvae) and T6 (20 days old larvae) were found statistically at par. The increase in the number of cocoons after increased larval age would be due to the capacity of larvae to favour development of parasitoid. Various workers have reported the similar views. Campos Farinha and Chaud Netto (2000) observed that number of offspring of *C. flavipes* was greater when heavier larvae of *Diatraea saccharalis* Fab. were exposed. Jalali and Singh (2002) also found similar results and reported that 2nd to 6th instar of *C. partellus* were most preferred for parasitism by *C. flavipes*. Jiang *et al.* (2004) reported significantly more number of *C. flavipes* cocoon emerging from 4th instar larvae than 3rd instar larvae. The data observed on per cent of females emerged from different aged larvae showed that all the treatments recorded maximum female emergence with 11 and 14 days old larvae yielding significantly more females (88%) and were at par with 8 days old larvae. It is also apparent from the table 1 that 17 and 20 days old larvae were at par yielding 82% and 83% females respectively. The effect of different size and age of host larvae on the sex ratio of emerged adult parasitoid have been reported by several researchers. They indicated that host age might be a primary factor in determining effectiveness of a parasitoid. In an investigation made by Campos Farinha and Chaud Netto (2000) the third to fifth instar *D. saccharalis* larvae individually exposed to *C. flavipes* influenced sex ratio which was biased towards females in all three instars. While Jalali and Singh (2002) reported positive relationship between age of larvae of *C. partellus* and per cent female progeny of *C. flavipes*. In contrast, Jiang *et al.* (2004) reported that there was no effect of host stage, *C. partellus*, on progeny sex ratio of *C. flavipes* but, might be a primary factor in determining effectiveness of a parasitoid.

**ACKNOWLEDGEMENTS**

The senior author is thankful to the Dean, Rajasthan College of Agriculture and Head, Department of Entomology for providing the necessary facilities for the present investigation.

**REFERENCES**


