

Acceptance of the Teak Defoliator *Hyblaea puera* (Cramer) (Lepidoptera: Hyblaeidae) by Two Exotic species of *Trichogramma* (Hymenoptera : Trichogrammatidae)

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Natural control of the teak defoliator, *Hyblaea puera* Cramer by a large number of larval and pupal parasitoids has been reported (Chatterjee and Misra, 1974; Sudheendrakumar, 1985). However, only very very little information is available on egg parasitoids of the teak defoliator (Beeson, 1941; Nair *et al.*, 1994).

Based on a laboratory study, Ahmad (1989) reported acceptance of *H.puera* eggs by three species of *Trichogramma*, namely *T.chilonis* (=australicum) Ishii, *T.brasiliensis* Ashmead and *T.japonicum* Ashmead. In the present paper, the acceptance of *H.puera* eggs by two arboreal species of *Trichogramma* under laboratory conditions is reported. These two species were selected under the assumption that their arboreal nature would be advantageous when employed for biocontrol programme in a tall tree crop system like teak.

The nucleus cultures of the two parasitoids were obtained from the Project Directorate of Biological Control, ICAR, Bangalore and multiplied on the eggs of *Corcyra cephalonica* (Staint). *H.puera* eggs were available from the host cultures maintained in the laboratory. Fresh eggs of *H.puera* were collected and glued on to 3x1 cm white card pieces. Cards holding eggs @ 4, 10, 20 were prepared. Each egg card was exposed to one mating pair of the parasitoid in a glass vial (10x3 cm). For each experiment, 10 replicates were used. After 24h of exposure of the parasitoids, the eggs were taken out and kept under observation until parasitoids emergence to determine the percentage parasitism. In another experiment, the effect of age of the host egg on the acceptability by the parasitoids was studied. Fresh eggs and one day old eggs were used for the study. Ten eggs were exposed to one mating pair of the parasitoids. For each parasitoid ten

Table 1. Parasitisation by *T. embryophagum* and *T. dendrolimi* under different parasitoid-host egg ratio

Parasitoid	Mean percentage parasitism			Mean
	Parasitoid-host egg ratio			
	1:4	1:10	1:20	
<i>T. embryophagum</i>	95.0 (75.23)	80.0 (55.08)	60.5 (38.21)	78.5 (56.17)
<i>T. dendrolimi</i>	82.5 (60.05)	63.0 (39.32)	58.5 (36.11)	68.0 (45.16)
Mean	88.8 (67.64)	71.5 (41.19)	59.5 (37.16)	

Figures in parentheses indicate angles corresponding to percentage.

C.D. (P=0.05)

Parasitoid (16.36)

Parasitoid-host ratio (12.74)

Interaction Not Significant

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Table 2. Effect of age of host egg on percentage parasitism

Parasitoid	Percentage parasitism	
	Age of egg	
	Fresh	One day old
<i>T. embryophagum</i>	75.0 (54.32)	13.0 (7.49)
<i>T. dendrolimi</i>	60.0 (37.01)	17.0 (9.81)
Mean	67.5 (45.66)	15.0 (8.85)

Figures in parentheses indicate angles corresponding to percentage

C.D. (P=0.05)

Parasitoid	(19.16)
Parasitoid-host ratio	(33.46)
Interaction	(33.46)

replicates were used. The data were transformed into corresponding angles ($\arcsin \sqrt{\text{percentage}}$) and subjected to analysis of variance using SPSS statistical software package.

The results of the first experiment indicated that the percentage parasitism was significantly different between the two parasitoid species and between the three parasitoid-host ratios. However, the interaction between the parasitoids and the parasitoid-host ratio was non significant. Parasitism caused by *T. embryophagum* (Hartig) was significantly higher than that of *T. dendrolimi* Matsumura and highest parasitism occurred under the parasitoid-host ratio of 1:4 (Table 1).

The second experiment indicated that the percentage parasitism was significantly higher on fresh eggs than on one day old eggs. Percentage parasitism caused by *T. embryophagum* was significantly higher than that caused by *T. dendrolimi*. The interaction between the egg age and the parasite species was also significant (Table 2).

The study showed that *H. puera* eggs are accepted by *T. embryophagum* and *T. dendrolimi* under laboratory condition. However, further experiments are warranted before recommending these arboreal *Trichogramma* species for field release for the control of the teak defoliator.

KEY WORDS: *Hyblaea puera*, egg parasitoids, *Trichogramma embryophagum*, *T. dendrolimi*

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