

EVALUATION OF BEST FOOD SOURCE, FOOD CONCENTRATION AND FEEDING METHOD FOR REARING OF *TRICHOGRAMMA CHILONIS* ISHII (HYMENOPTERA : TRICHOGRAMMATIDAE)

S.A.A. Singhamuni^{1*} and K.S. Hemachandra²

¹ *Postgraduate Institute of Agriculture, University of Peradeniya, Sri Lanka*

² *Department of Agricultural Biology, Faculty of Agriculture, University of Peradeniya, Sri Lanka*

**asirisinghamuni@gmail.com*

Egg parasitoids (Trichogrammatidae) are efficient biocontrol agents used through augmentative release which demands an efficient mass rearing. Our previous studies revealed that *Trichogramma chilonis* can be used to manage cabbage pests but it requires mass rearing. In mass rearing, it is important to provide the appropriate food in the best feeding method. Therefore, the objectives of this study were to determine the best food source, best concentration of sugar suitable for parasitoids and the best method of feeding adult parasitoids.

Suitability of saturated sugars (glucose, fructose, sucrose, undiluted honey) and distilled water were evaluated in terms of adult longevity. Newly emerged ten parasitoids were enclosed in each of clear plastic vials with a drop of food solution. A set of parasitoids were maintained without food as control. Treatments were replicated ten times. Based on the first experiment, beehoney solutions (50, 33, 25, 20, 16 and 0 % in water) were evaluated for adult feeding in terms of adult longevity. Each vial contained newly emerged 10 adults and replicated ten times. Different feeding methods: filter paper (1/16 part of filter paper), wick (1.5 cm long), sponge (1 x 1 x 1 cm) and drop methods were tested for suitability of the feeding method. Food source was given using different feeding techniques within plastic vials. Each vials contained one day old, ten parasitoids. The control consisted with unfed parasitoids.

Longevity of *T. chilonis* varied significantly when they were fed on different food sources ($F=162.1$, $df=5,594$ $P<0.001$). Beehoney was the best food source to keep them alive for a maximum period of 17.9 mean days. Mean longevities were 15.5, 12.1 and 15.8 days when adults were fed on glucose, fructose and sucrose, respectively. Longevity of *T. chilonis* varied significantly when parasitoids were fed with different concentrations of beehoney ($F=122.6$ $df=6,693$ $P<0.001$). Fifty percent bee honey solution was the most suitable concentration. Mean longevities were 17.5, 18.8, 13.5, 10.2, 7.9, 5.8 and 3.7 days when adults were fed on 100, 50, 33, 25, 20, 16 and 0% bee honey solutions, respectively. Longevity of *T. chilonis* varied significantly with the feeding method ($F=86.596$, $df=3,396$ $P<0.001$). In terms of longevity, filter paper feeding method was the best when rearing parasitoids in the laboratory. However, practicing filter paper method is difficult in terms of labour and time consumption. In comparison, drop method is more feasible for feeding parasitoids. Overall, 50% beehoney is the best food source to feed adult *T. chilonis* parasitoids to keep them alive for a longer period of time.

Financial assistance given by the National Science Foundation of Sri Lanka (RG/2011/Ag/05) is acknowledged.