PUBLICATIONS/CONFERENCES/ SYMPOSIA/ WORKSHOPS
EFFECT OF TEMPERATURE ON THE DEVELOPMENT AND SURVIVAL OF Trichogramma brasiliensis (ASHMEAD), AN EGG PARASITOID OF Helicoverpa armigera (HUBNER)

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ABSTRACT: Agriculture plays a greater role in the economic status of developing countries; as it provides livelihood to vast majority of people. The most pressing problem today in agriculture is the need to reduce the losses of crops and their products from the attacks of insect pests. Therefore to prevent the damage to agriculture, forestry and horticulture, insect control needs attention on war footing. Realizing the magnitude of problems posed by insect pests various methods are used to control insect pest including biological control. In the present study the Trichogramma brasiliensis was used as a biocontrolling agent to control the population of the insect pest Helicoverpa armigera, a polyphagous pest of pulses, cereals, cotton, vegetables, etc. The mass breeding of parasitic and predatory insects is one of the important aspect of integrated pest management, especially biological control of insect pest. However, success in raising large broods or rearing of insects under artificial conditions depends mainly upon thorough study of their habits and ecology, especially their reaction to different range of temperatures and relative humidity. In the present study, Trichogramma brasiliensis, an egg parasitoid of H. armigera was studied in relation to different range of temperatures at the laboratory conditions ranged from 10°C to 40°C. The developmental period and survival was found to be 14, 12, 10, 07, 06, 05 days and 32, 38, 44, 76, 79, 82% parasitism period and survival was found for maximum survival and emergence of adult parasitoids was 22°C.

Key words: Trichogramma brasiliensis, Helicoverpa armigera, Temperature, Development, Parasitism.

INTRODUCTION

Ecology plays very significant role in the development of insects especially temperature. Mass rearing of beneficial insects is one of the prerequisite in biological control practices, which is practiced all over the world. The information concerning the survival of parasitoids and duration of developmental period at various temperatures, provides an important tool for the rearing strategy. Temperature has its influence not only on development, longevity and survival but also on fecundity, suppression and parasitization. Effect of different temperatures on the development and survival of adult hymenopterous parasitoids were studied by Belling (1993) with Dendrolimus sp., Fiedler (1959) on Ceratocuculasp., Bhalla and Venkatraman (1963) with Coccodes (Cocca) (Cocca), Kajita and Drake (1969) on Colias chilonis Muska (Apatelis chilisis) and C. fossett (Cocca) and Kawai & Toudon (1969) with Glycaspides militaris (Welsh) Trichopus, Maiyanath (1972) studied the developmental biology of Trichogramma minutum armigera (Nagaret) at 25°C and 87.5% for P. cactorum and C. armigera (Croc). Calvi et al. (1984) for Trichogramma pretiosum Rambay & Mines (1950) for P. cactorum and C. armigera (Croc). Yee et al. (1980) for Anagasta kiriukinari (Haliday), Nakam and Sathe (1981) studied the effect of temperature on development of Dendrolimus minutum armigera. Calv et al. (1984), studied the impact of environmental factors on Trichogramma pretiosum reared on eggs of weevil on weaver (Drosophila melanogaster). Arici et al. (2003) has also studied the temperature effects on Trichogramma pretiosum Rambay and Trichogramma minutum annulata De Sais. Pandit (2008) also studied the ecology of T. chilonis.
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• Participated in National Symposium on Recent Trends in Modern Biology, (Department of Zoology, and University of Pune 2010).

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• Participated in National Symposium on Recent Trends in Modern Biology, (Department of Zoology, and University of Pune 2011).

• Participated in National Symposium on Recent Trends in Modern Biology, (Department of Zoology, and University of Pune 2012).

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