Asian Journal of Bio Science, **Vol. 3 No. 2 : 260-262 (October, 2008)**

Biology of diamondback moth, *Plutella xylostella* (Linn.) on *Brassica juncea* cv. PUSA BOLD

TUFAIL AHMAD*, HAIDAR ALI AND M. SHAFIQ ANSARI
Department of Plant Protection, Faculty of Agricultural Sciences, Aligarh Muslim University, ALIGARH (U.P.) INDIA

(Accepted : June, 2008)

Biology of diamondback moth, *Plutella xylostella* was studied under protected natural and laboratory condition on mustard crop. Oviposition period 4.5±0.38 days of Plutella xylostella in field condition while, 6.5±0.41 days in laboratory condition. It passed through four instar, the larval periods are 9.5±0.36, 16.5±0.41, 7.5±0.79 and 7.5±0.72 days, respectively. The pupal period ranged from 10.0±1.58 days. Adult longevity of males and females 12.5±1.11 and 20.0±1.00 days in field condition. In laboratory condition the larval periods ranged from 5.0±0.55, 3.5 ±0.60, 4.0±0.45 and 3.5±0.85 days and the pupal period ranged from 4.50±1.11 days. The adult longevity of males and females 8.0±0.70 and 11.0±0.82 days. The life period of males and females 64.5±5.02 and 72.0±5.09 days in field condition while, in laboratory condition 32.5±4.03 and 35.5±4.32 days.

Key words : Biology, *Plutella xylostella*, *Brassica juncea*, Temperatures, Relative humidity etc.

INTRODUCTION

Diamondback moth, *Plutella xylostella* (Linn.) is a major pest of cabbage and cauliflower has caused serious damage world wide. The biology of diamondback moth was studied by different diamondback moth researcher in India *i.e.* (Harcourt, 1957, Bhalla and Dubey, 1986, Chellian and Srinivasan, 1986) revealed a variation in various parameters due to damage in environmental condition and different location. Diamondback moth has an ability to survive a wide range of temperature (Ooi, 1986). According to Hardy (1938), prefers a warmer environment for its development and he suggested the Mediterranean region an its most probable. Originated habitat diamondback moth is an oligophagous insect and feed on plants that contains mustard glycosides (Thorsteinson, 1953). Indian mustard (*Brassica juncea* (L) Czern) was reported to be a host for diamondback moth (Jayarathnam, 1977, Singh and Rawat,1983). The diamondback moth also feeds on large number crucifers plants which considered to be weeds diamondback moth maintains itself on these weeds only in the absence of more proved cultivated host (Talekar and Shelton, 1993). The host range of *Plutella xylostella* is limited to crucifers because they contain mustard oils and their glycosides (Gupta *et al.*, 1960, Hillyer and Thorsteinson, 1971, Nayar and Thorsteison, 1963, Thorsteinson, 1953 and 1955). In Kenya farmers reports that *P. xylostella* has expanded, its host range to include sugar snap. Peas mangietous and Lisianthus, (Lohr, 2001, Rossbach and Lohr, 2006). The mustard (*Brassica juncea*) is a second alternative host of diamondback moth. The study of biology on mustard may be highly useful in IPM Gazette.

MATERIALS AND METHODS

The biology of diamondback moth, *Plutella xylostella* was studied under protected conditions on mustard crop and laboratory condition at 25±2^{0}C constant temperature. In laboratory condition adults are released with mustard leaves and cotton soaked with sugar solution in glass jar covered with muslin cloth for egg laying and daily transfer of DBM eggs place for incubation. After hatching of eggs daily provided fresh leaves till pupation and adult were counted after emergence from pupa. In field condition seed of mustard, *Brassica juncea* var. Pusa Bold were sown in plots measuring 2x1x1.5 m (LxWxH) in *rabi* season. All agronomic practices were carried out along with dosage of fertilizers *i.e.*NPK 30 days after germination, thinning was done on 25 days after germination where row to row distance was 40 cm and interplant distance maintained at 45 cm. These plots were covered over by nylon net (2x1x1.5 m) and then released a pair of copulated diamondback moth and it was replicated three times.

RESULTS AND DISCUSSION

Eggs:

The mating takes place after few hours of emergence and only once in their life span of but male more than one time (Wang *et al.*, 2005). Mating pairs remain in copulation for 1-2 h at in laboratory condition but extend to 3 h in

* Author for correspondence.