RESEARCH ARTICLE

EVALUATION OF DIFFERENT BOTANICALS AND BIOPESTICIDES AGAINST *HELICOVERPA ARMIGERA* ON MARIGOLD

Vipin Prakash Bhagat, G.P. Painkra*, P.K. Bhagat, C.R. Gupta and K.L. Painkra

Department of Entomology, Rajmohini Devi College of Agriculture & Research Station, Ambikapur-497001 Surguja (Chhattisgarh) India

Received-07.11.2017, Revised-26.11.2017

Abstract: The different botanicals and bio-pesticides were tested against the natural incidence of the *Helicoverpa armigera* on marigold crop var. Morden during *Rabi*2016-17. The experiment was undertaken in a randomized block design (RBD) with seven treatments *viz,*HaNPV (250 LE) @ 2ml/ litre, NSKE @ (5%), *Bacillus thuringiensis* @ 2.5g/litre, Neem oil @ 4ml/litre, *Beauveria bassiana* @ 4gm/litre, Karanj oil @ 5% and Untreated control in three replications with 3 x 2.5 m^2 plots and row to spacing of 60 x 30 cm. In all two sprayings were undertaken so as to evaluate the effectiveness of the treatments and it were observed that the larval incidence at 1, 3, 5, 7 and 10 days after both spraying was lowest in plots sprayed with HaNPV. However the next best treatments in the order of effectiveness for the control of *Helicoverpa armigera* were NSKE 5%, *Bacillusthuringiensis*@ 2.5 gm/litre, Neem oil @ 4ml/litre, *Beauveriabassiana* @ 4ml/ litre, Karanj oil @ 5%.

Keyword: *Beauveria bassiana*and *Bacillus thuringiensis,* HaNPV, Marigold, NSKE

REFERENCES

Anonymous (2003). Directorate of Horticulture, Ministry of India.

Anonymous (2014). Pest of sunflower –Insect Pest-Captulum borer, Oilseeds Agropedia.

Anonymous (2016). Directorate of Horticulture, Ministry of Chhattisgarh. pp. 07.

Manjunatha, T.M., Bhatnagar, V.S., Pawar C.C. and Sitanatham, S. (1985). Economic importance of *Heliothis*spp. in India and an assessment of their natural enemies and host plants. In: proceedings of biological control of *Heliothis*: Increasing effectiveness of natural enemies New Delhi, India,11-15 Nov.,1985. PP. 197- 228.

Margal, S. M. (1990). Studies on estimation of losses in sunflower cultivars due to *Helicoverpa armigera* Hub. (Lepidoptera: Noctuidae) and possible occurrence of biotypes. Ph. D thesis, University of Agricultural Sciences, Bangalore, 146 PP.

Jagadish, K. S. Y., Shadakshari, G., Puttarangaswamy, K. T., Karuna, K., Geetha, K. N. and Nagarathna. T.K. (2010). Efficacy of some biopesticides against defoliators and capitulum borer, *Helicoverpa armigera* Hub. In sunflower, *Helianthus annuus* L. *Journal of Biopesticides* 3(1): 379-381.

Kati (2010). Annual report of sunflower, In Annual Workshop held at TNAU, Coimbatore by Directorate of Oilseeds Research, Hyderabad. PP.208-214.

Mane, P.N., Rathod, P.K., Balode, K.L. and Deshmukh, S.N. (2013). Efficacy of microbials and botanicals against *Helicoverpa armigera* (Hubner) in sunflower, *Current Biotica,* **7**(3):241-245.

*Corresponding Author