J. Exp. Zool. India Vol. 25, No. 1, pp. 471-480, 2022	www.connectjournals.com/jez	*ISSN 0972-0030*
DocID: https://connectjournals.com/03895.2022.25.471		eISSN 0976-1780

BIO-EFFICACY OF NEWER INSECTICIDES AND BIOPESTICIDES AGAINST MAJOR SUCKING INSECT PESTS OF CHILLI

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(Received 14 December 2021, Revised 07 January 2022, Accepted 20 January 2022)

ABSTRACT : Investigations on "Bio efficacy of newer insecticides and biopesticides against major sucking insect pests of chilli" were conducted at Horticulture farm, S.K.N. College of Agriculture, Jobner during Zaid, 2014 and 2015. Thrips, *Scirtothrips dorsalis* Hood and whitefly, *Bemisia tabaci* (Genn.) were recorded as a major sucking insect pest of chilli during both the years of study. The present findings indicated that insecticides *viz.*, the insecticides *viz*., acetamiprid 20 SP @ 0.004%, thiamethoxam 25 WG @ 0.025%, imidacloprid 17.8 SL @ 0.005%, fipronil 5 SC @ 0.01% and standard check (dimethoate 30 EC @ 0.03% / oxydemeton methyl 25 EC @ 0.025%) were found effective against both the pests, however, acetamiprid 20 SP @ 0.004% was most effective against thrips and imidacloprid 17.8 SL @ 0.005% against whitefly. The entomopathogenic fungus *viz*., *Beauveria bassiana* 1.15 WP @ 1 g/l and *Metarhizium anisopliae* 1.15 WP @ 1 g/l were found least effective against both the pests. The highest fruit yield of 105.11 q/ha was recorded in the plots treated with imidacloprid 17.8 SL @ 0.005% followed by thiamethoxam 25 WG @ 0.025% (103.18 q/ha), acetamiprid 20 SP @ 0.004% (99.99 q/ha), standard check (99.69 q/ha) and fipronil 5 SC @ 0.01% (97.65 q/ha). The highest BC ratio was recorded in imidacloprid 17.8 SL @ 0.005% (37.37), followed by acetamiprid 20 SP @ 0.004% (35.18) and standard check (30.03).

Key words : *Bemisia tabaci*, bio-efficacy, biopesticides, chilli, *Scirtothrips dorsalis*.

How to cite : R. G. Samota and B. L. Jat (2022) Bio-efficacy of newer insecticides and biopesticides against major sucking insect pests of chilli. *J. Exp. Zool. India* **25**, 471-480. DocID: https://connectjournals.com/03895.2022.25.471

INTRODUCTION

Chilli is one of the most popular and highly remunerative vegetable crops grown throughout the world. India is the largest consumer and exporter of green chillies in the world with a production of 3720 thousand metric tonnes from an area of 364.47 thousand hectares during 2018-19 (Anonymous, 2020). In India, it is intensively cultivated in Andhra Pradesh, Maharashtra, Karnataka, Tamil Nadu and Rajasthan and in hilly areas of Uttar Pradesh. In Rajasthan, it is cultivated in an area of 11.00 thousand hectares with an annual production of 13.34 million tonnes (Anonymous, 2018). The major chilli growing districts of Rajasthan include Jodhpur, Swai Madhopur, Pali, Jalore, Bhilwara, Jaipur, Ajmer, Tonk, Udaipur and Bharatpur.

The various factors are responsible for the low productivity and production of chilli include adverse climate, poor quality seeds, diseases, insect and mite pests. The insects and mites are of prime importance which significantly affects both the quality and production of chilli. About 51 insect and 2 mite species, belonging to 27 families and 9 orders were found infesting to chilli (Reddy and Puttaswami, 1988). Among these thrips, *Scirtothrips dorsalis* Hood, whitefly, *Bemisia tabaci* Genn., aphid, *Aphis gossypii* Glover, leafhopper, *Amrasca biguttula biguttula* (Ishida), fruit borer, *Helicoverpa armigra* (Hubner) and mites, *Polyphagotarsonemus latus* Banks are important pests contributing 60 to 75 per cent yield loss in green chilli.

In order to prevent the infestation of insect pests and to produce a quality crop, it is essential to manage the pest population at the appropriate time with suitable measures. Overuse of pesticides has often led to the development of undesirable problems like destruction of natural enemies, pest resurgence and failure of control strategies leading to the outbreak of leaf curling in chilli. In addition, the presence of pesticide residues in chillies (Joia *et al*, 2001) has been more concerned for export of chillies to developed countries. Keeping these points in view, the present study was undertaken to evolve the