

## EFFECT OF ABIOTIC FACTORS ON GREEN LACEWING POPULATION UNDER MUSTARD AGRO-ECOSYSTEM

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**ABSTRACT :** The results revealed that the occurrence of *Chrysoperla* population begin from 28 January with *Chrysoperla* population 0.018 per plant was recorded. The *chrysoperla* population reached to its peak recording 0.142 per plant during third week of February. Thereafter, a decrease in *chrysoperla* population during first week of March was recorded as low as 00.002 per plant. The correlation revealed that temperature and relative humidity had a positive correlation with *Chrysoperla* population at 0.05% level.

**Key words :** Mustard Agro-ecosystem, effect, abiotic factors, *Chrysoperla carnea*.

### INTRODUCTOION

Rapeseed and mustard are the most important winter season oilseed crops of India. It is self-pollinated cruciferous plant belonging to genus *Brassica*, originated from eastern Afghanistan and adjoining parts of India and Pakistan. Due to the gap between domestic availability and actual consumption of edible oil, India has to resort to the import of edible oils. The main bottleneck for increasing production and productivity of Indian mustard crop are abiotic and biotic factors. This crop is ravaged by several insect pests, which reduce the vigour and thus changing the crop phenology and ultimately reduce the yield. Bakheta (1987) from Ludhiana (Punjab) reported a total of 38 species of insect pest association with rapeseed and mustard crops at once or another stage of the crop growth. Many insect pest species are found infesting mustard crop namely sawfly (*Athalia lugens Proxima*), leaf miner (*Chromatomyia horticola*), painted bug (*Bagrada hilarious*), flea beetle (*Phyllotreta cruciferae*), leaf feeders like diamondback moth (*Plutella xylostella*), pod borer (*Crocidolomia binotalis*), hairy caterpillar (*Spilosoma obliqua*), cabbage butterfly (*Pieris brassicae*) and mustard aphid (*Lipaphis erysimi*), among these pests mustard sawfly, *Athalia Proxima* (Klug.) and mustard aphid *Lipaphis erysimi* (Kalt.) are considered as a major pests of the mustard crop. Mustard aphid, *Lipaphis erysimi* (Kalt.) (Homoptera: Aphididae) is the most serious pest of mustard) infesting the crop from vegetative stage to pod stage (Sachan, 1990). It causes 66 to 99 per cent loss in *B. campestris* L. and 27-28 per cent in *B. juncea* L. (Bakheta, 1979) with losses in oil

content of 15 per cent (Verma and Singh, 1987). The nymphs and adults suck the sap from leaves, stems, inflorescences and pods resulting in stunted growth of the plant, withering of flower and development of deformed pod (Atwal and Dhaliwal, 1997). This pest is more abundant from December to March infesting various cruciferous oilseeds and vegetables. The cloudy and cold weather (20°C or below), with high relative humidity (70-75 per cent) are very favourable conditions for the multiplication of mustard aphid. Improved agro-production technology both for irrigated and rainfed areas, which emphasized the need for timely sowing, spacing, seed rate, fertilizer application, thinning at an appropriate time etc. for increased the rapeseed-mustard productivity. A number of chemical insecticides have been reported to be effective against increasing population of aphid at various parts of the country (Chinnabhai *et al*, 1999; Sachan *et al*, 2006). Aphids are a prolific breeder and require repeated application of insecticides which leads to several ill effects i.e. toxic effect to non-target species, secondary pest outbreak, the effect on the food chain, non-biodegradable, pollution hazard, and problems of residue hazard to man, animals and environment. These ill effects of synthetic insecticides can be overcome by the use of biological control agent. Among the several bio-agents, syrphid flies (Diptera: Syrphidae) *Syrphus confrater* (weid.), *Syrphus balteatus* (Deg.) and *Ischiodon scutellaris* (Fab.), lady bird beetle, *Coccinella septempunctata* (L.) (Coleoptera:Coccinellidae) and *Diaeretiella rapae* are the important entomophagous predators and parasitoid upon many species of aphids