



MUSTARD APHIDS CONTROL FROM BIOLOGICAL STRATEGY

¹Pinki kumara, ²Dr. Neetu singh

¹Research Scholar, ²Assistant Professor

Department of Zoology

shri jagdish Prasad jhabarmal tibdewa university churela, Jhunjhunu

Abstract-

Mustard aphid One of the most important threats to Indian mustard is *Lipaphis erysimi*. Every year, several insecticides that are not considered to be biologically safe are applied to lessen the intensity of aphid attacks. According to some accounts, *L. erysimi* can be controlled in a way that is biologically safe by employing cultivars that are tolerant of aphids as well as some natural enemies. This article also emphasizes how cost-effective and safe for the environment the biocontrol of mustard aphids is for Indian farmers. The ladybird beetle, *C. septempunctata*, is well known as a good biological control agent due to predation in nature and a short life cycle, both of which are positive traits. Consequently, using the aforementioned species will help reduce sucking.

Keyword- mustard aphids, biological control, Feeding behavior, Predator, Aphid tolerance; Biologically safe.

Introduction

Various vegetables, such as mustard and oilseed crops, such as *B. alba*, *B. campestris*, *B. napus*, and *B. juncea*, as well as cruciferous beets, *Beta vulgaris* (Linnaeus), potatoes, *Solanum tuberosum*, (Linnaeus), tomatoes, *Lycopersicon esculentum* (Mill.), tobacco, *Nicotiana tabacum* (L.), a useful plant, *Brig*, *Withania somnifera*, *Ageratum conyzoides*, and *Gynandropis pentaphylla* (D.C.) . Brassica crops are heavily impacted by the mustard *L. erysimi* (Kalt.) pest. It primarily targets the Cruciferae family and many important commercially important crops. It is a severe issue in many other nations around the world, including the USA, Pakistan, and India. This pest (nymph and adult) attacks mustard plants from the time they are first planted until they are harvested, sucking the cell sap from the plant's leaves, stem, and inflorescence, which

stunts the plant's growth and prevents the development of pods and fading flowers. Compared to other larger insects, aphid may quickly kill plants. Because of the pest's widespread distribution, people can risk losing their entire mustard crop.

It forms a serious nuisance in the agricultural world. In nature most aphids feed on one or two plant species, monophagous and some aphids feed on different plant species, polyphagous such as the aphid of *Gossypium*, *A. gossypii* (glover) and green peach aphid, *M. persica* (Sulzer). Aphids have different names such as black flies, greenflies, plant lice or small sap-sucking insects. Aphids have six legs with soft bodies and characteristic colors such as dark brown, pink, green, white or almost dull. Aphids also have tails; A tail-like projection on their posterior space. It has a pair of compound eyes with 3 focal points known as triomatidia. *Brassica campestris*, a mustard plant belonging to the Brassicaceae family; Commonly called sarson, the main cultivated species are: *Brassica campestris*, *Brassica napus*, *E. sativa* and *Brassica juncea*. Usually, *B. campestris* and *B. napus* include *B. juncea*, *B. sativa*, *B. alba* and *B. carinata gorschisa*. Gant oil is used for cooking and making soaps and ointments; mustard crops are cultivated in 81% of the total area. Commonly used as feed for human consumption as well as animal feed, resin-mustard green leaves contain 46-48% fat and 43.6% protein. Mustard occupies the most important place in the import exchange, oil consumption in Pakistan has increased from 0.3 to 1.95 million tons. Mustard crop is mainly grown in Rabi season in India. Mustard is the most suitable crop for pest control and 6 species are mainly attacked in Sekhawati region, which can be controlled by biological control. Due to various biotic and abiotic factors, this plant also experienced severe yield loss among these biotic components; Insect pests cause a lot of damage to mustard plants.

Biological control-

Among coleopterans, Coccinellidae is a famous and diverse family in the world, which includes about 6 thousand species of beetles. Coccinellid beetles are valuable to eat sap, aphids, whiteflies, psyllids, mealybugs, beetles, scale insects, as well as small insects in the eggs of various insects, and play an important role in forests and agro-ecosystems as grubs and adults. Many insects harm herbivorous insects. These ants are considered useful natural insecticides due to their predatory nature and against all kinds of insects that larvae and adults eat strongly. Natural pest control is the best alternative to highly toxic and hazardous pesticides commonly used to control plant pests.

seven-bellied ladybird, *Coccinella septempunctata* Linn. is the main predator of many aphid species; bollworm caps larvae, jassid eggs, eggs and small nymph. Both larvae and adults, these birds are strong and predatory, as well as large insects; the most destructive group of insects. This is the most important of all predators. Adults and first instars are often found in large numbers on plants covered in sap. They eat these harmful pests and often play a role in keeping them under control. It preys on eggs, larvae and adults of various insects and most importantly on sap. Adult *C. septempunctata* can consume up to 100 saps per day. Rats kill their prey completely and then eat it. According to current research, this natural enemy, the seven-spotted ladybug (*Coccinella septempunctata*), is the safest biological control agent for the mustard beetle.

The Importance of aphids Management

Low to moderate aphid population levels usually do not cause significant damage and rarely kill mature plant. However, severe damage can reduce plant productivity and produce near "honeydew". pest control. Aphids are better managed by handling and exploiting natural predators less effective approach such as washing or removing weeds. Aphid control is most valuable for new plantings, where it is most effective at eliminating stem borers total plant power. Established and otherwise healthy plants can tolerate moderate to heavy watering. Infested, affected leaves may turn yellow and may be premature Falling Good cultural practices such as watering and fertilizing will help reduce stress on these insects. Honey and wet residue problems may develop, but may be temporary and then disappear the grass is gone. Some species of succulents produce flattened or flattened leaves; This plant can lose some of their aesthetics pleasant for the season. Once orientation occurs, the leaves will remain until they are compressed and twisted fall Infestation is usually not noticed until there is an injury. Insecticide This is often less effective because the sap is stored in the deciduous leaves. Plants infected with this virus can become severely stunted and die. Preventive sprays are rarely effective in keeping viruses away from plants, but they can reduce them spread in the group of vulnerable plants.

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