



A REVIEW

Different means of biological control against insect-pests in Indian sub-continent

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ARTICLE INFO

Received : 09.05.2012

Accepted : 16.08.2012

Key Words :

Biological control, Insect pest, Parasites, Predators

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ABSTRACT

Biological control may be defined as the use of natural enemies to suppress the pest species. The term natural enemy refers principally to the parasites and predators (mostly other insects) but may also include disease organisms. The high potential rate of increase of insects counters balanced most of the time by high mortality. The two broad groups of natural mortality factors are associated with physical aspects of the environment and those that are due to activities of other living organisms.

How to view point the article : Bhardwaj, Tulsi (2012). Different means of biological control against insect-pests in Indian sub-continent. *Internat. J. Plant Protec.*, 5(2) : 424-428.

INTRODUCTION

In older times, Chinese used Pharaoh's ant, *Monomorium pharouis* for the control of pests of stored grain. Another predaceous ant, *Oecophylla smaragdina* was used in Olinia in citrus groves to control the foliage feeders. The same species was also used in Yemen to control insect pests in date palm fruit. In more recent times, the Indian Mynah (*Acridothera tristis*) was introduced in Mauritius in 1962 to control the red locust. In 1873, Riley introduced predaceous mite, *Tyroglyphus phylloxerae* from US to Europe to control the grape phylloxera, *Phylloxera vitifoliae*.

Biological control agents :

There are three different type of agents used for suppression of pests in a crop. These are insect predators, parasites and diseases of insects induced by microorganisms.

Predators :

Predators of insects are animals which capture and consume them as a source of food. Many are other insects, but some other animals also feed on insects, either exclusively or a component of a more mixed diet.

Biological control, insect pest, parasites and predators :

Insect predators and their prey :

Several families of beetles are largely predatory in habit. Among these, the lady birds are important as they attack mainly aphids, scale insects, and mealy bugs, many of which are serious pests of plants. The ground beetles, rove beetles and tiger beetles are predators of a diverse range of ground dwelling insects. A few orders of insects such as Neuroptera are exclusively predatory. Oily fly, ants, bees and wasps are predatory. Spiders which are closed relatives to insects are exclusively predatory. The predatory habit is also quite common in mites. The major groups of insect predators are given in Table 1 along with their preys.

Parasites :

Insect parasites are those whose larvae feed internally or externally on the body of another insect. The attacked insect is referred to as host and sustains parasitic larvae throughout its development. Insect parasites are always smaller than their hosts, while in predators insects are always bigger than the prey. Insect parasites invariably kill their host by the time their own development is completed. The main families under these orders are listed in Table 2 along with their principal hosts.