Bio Control of Major Pests of Some Leafy Vegetable

Biology

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Kumari Indu

Research Scholar
Department of Zoology ShriVenkateshwara University, Gajraula, U.P. India.

Abstract

A sustainable development in all sphere of life, including sustainable agriculture has become a significant topic of discussion at various world forum. The current revival of interests in biological control is also driven by a change from pest control approaches that aims to maximize productivity and to approaches that emphasis efficiency and increase sustainability of agro eco system. The conservation of our natural resources such as air, water and soil as well as natural enemies are essential to maintain the stability of the eco system. The use of eco friendly material such as microbial and botanical insecticides emerged as a superior alternative to the synthetic insecticides.

Vegetables

In today's context bio control of insects and pests plays a significant role in controlling the pest population. It is one of the many possible ways which includes predatons,parasites and pathogens in controlling any wanted pests for a sustainable development in all sphere of life. Sustainable agriculture have become a significant topic of discussion at various world forum. The construction of our natural resources such as air, water and soil as well as natural environment are essential to maintain the stability of the ecosystem. The bio control of pests aims at developing different approaches which did not lead to the degradation as well as depletion of their gifts from nature. It is high time that more emphasis must be given on evolving an eco friendly non chemical i.e. biological approach of pests management in this post modernised era. Resistance of insects to DDT was first observed in 1947 in the Muscadomestica (housefly). By the end of 1967 about 91 species of insects have been proved to be resistant to DDT, 135 to cyclodienes to oregano phosphates and 20 to other type of insecticides including carbonates. By 1998 about 500 species were known to be resistant to DDT, 725 to cyclodienes, 347 to organ phosphate and 97 to carbonate and 1.35 to other insecticides. The current revival of interests in biological control is also driven by a change from pest control approaches that aims to maximize productivity and to approaches that emphasis efficiency and increase sustainability of agro eco system (William and Leppla 1992). Being so long forgotten and dominated by the use of agro chemical methods, bio control has now been identified and considered as the attractive method of insect control together with other non chemical or bio based controlling measures generally less persued in developing countries like India where there exists need to thoroughly explore and evaluate their native natural enemies which might be and most likely not yet identified as promising bio-control agents. Recent programme combine molecular method and conventional taxonomy to identify the inter and intra species diversities and offers scope for the selective deployment of bio controlling agents to match the specific needs of the target eco system. There is need and scope to spouse a more active partnership among stack holders, researchers, existing developmental agencies, private enterprises and users or cultivator.This needs to be given a right support and research and development back up classical bio control through conservation and augmentation which could emerge as a vital component of I.P.M in controlling pest population.

Impact

Impact of insects and pests on Host plants: - Insects inflict injury to plants either directly or indirectly as a result of their feeding and breeding activities. Consequently certain morphological, anatomical and biochemical change take place within the plant system especially in the foliage. The lepidopteron and other chewing insects feed directly on the leaf tissues and sometimes consume the whole leaf lamina.[1] Cabbage being an important winter vegetable in extensively grown throughout India. The crop in attacked by a variety of insect pests, which act as limiting factors in the profitable cultivation of this crop. Due to varying agro climatic condition in different parts of the country various pest species are likely to vary from place to place and time to time. Evidently therefore the insecticides and their doses for controlling the pest on cabbage have to be different. In Rajsthan recorded diamond back month plutellaxylostella L and ophidLiapahiserysimi (kalt) to cause more conspicuous damage to cabbage crop.[2]

Diamond back month, Plutellaxylostella L has been reported to be one of the important factors responsible for the low productivity of cabbage and other important cruciferous crops in India. This pest if left untreated could lead to total destruction of cauliflower. The use of eco friendly materials from a superior alternative to the synthetic insecticides.

Hence Nagesh&Vama (1997) carried out preliminary investigation to determine bio efficacy of eco friendly insecticides viz, neem (Neemazal) bacillus thuringiensis (Biolep), diflybenzuron (Dimilin) lutenuron (match) and cartap (Padan) in IARI Delhi.[3] Among the various insect pests attacking cabbage the aphids, Brevicorynebrassicae(2), Lipaphiserysimi (Kalt) and mlyzuspersicae (sulzer), diamond back month, plutellaxylostella(2), cabbage butterfly, pierisbrassicae(2); cabbage semilooper, plusiaorichlcea (Hab) and Bihar hairy caterpillar, spitosoa oblique (wlk) were recorded as regular and most destructive pests of this crop, which act as limiting factors in its successful cultivation.[4]

Bio-control

Effect of Bacillus thuringiensis (Bt) on P.brassicaeLervae

Bacillus thuringiensis (Bt) is one of the programming bio pesticides useful for the control of insect pests particularly against of lepidopterous larvae infesting crufies (Hall &Andren 1956; Ramkrishn & Kumar, 1981) as many as 410 registered for mulation of Baciluesthuringiensis (Bt) have been developed under different trade name (Satyanarayan & Sharma;1993) of which "bioassp" is one of the most prominent for mulasion effective against lepidotern pests. Keeping view the important of p.brassica as pest, a laboratory tril was conducted to assess the efficiency of six different concepts of Bacilluesthuringieusis (Bt) against the Larval stage of B.brassicae. It was observed that spraying with 0.025% of (Bt) for I and II lustars and 0.1% for III instars could bring about high natality of this pests especially under laboratory condition upto 48 hours of treatment. Generally (Bt) products are known to be more study also confirmed the above fact and further indicated that higher concentration of (Bt) need to be used for efficient control of water piller of old stage.

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