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Biopesticides and its Action

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Short Communication

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ABSTRACT

Bio pesticides are a specific group of crop protection tools utilized in IPM. We define a bio pesticide as a mass-produced agent manufactured from a living micro-organism or a natural product and sold for the control of plant pests (this definition encompasses most entities classed as bio pesticides within the Organisation for Economic Cooperation and Development (OECD) countries, see. Bio pesticides fall under three differing types consistent with the active substance: (i) micro-organisms; (ii) bio chemicals; and (iii) semi chemicals.

INTRODUCTION

Biopesticides, including entomopathogenic viruses, bacteria, fungi, nematodes , and plant secondary metabolites, are gaining increasing importance as they're alternatives to chemical pesticides and are an enormous component of the numerous pest control programs. The virulence of varied biopesticides like nuclear polyhedrosis virus (NPV), bacteria, and material were tested under laboratory conditions very successfully and thus the chosen ones were also evaluated under fi eld conditions with major success. Biopesticide products (including benefi cial insects) are now available commercially for the control of pest and diseases. The overall aim of biopesticide research is to form these biopesticide products available at farm level at a reasonable price, and this is able to become a possible tool within the integrated pest management strategy. Moreover, biopesticide research remains happening and further research is required in many aspects including bioformulation and areas like commercialization. There has been a considerable renewal of economic interest in biopesticides as demonstrated by the considerable number of agreements between pesticide companies and bioproduct companies which enable the event of effective biopesticides in the market.

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CLASSIFICATION OF BIOPESTICIDE / CATEGORIES

The 4 different categories of bio pesticide

a) Plant-incorporated protectants

b) Microbial pesticide

c) Bio chemical pesticides.

d) Semi chemical

Plant incorporated protectants

Plant can be given genes that help the plants bodies make substance to fight pest. These self-pesticide are called "plant incorporated protestant "(PIPs). PIP-producing crops are sometimes called genetically modified (GM) or genetically engineered (GE). These include pesticidal substance that are produced in genetically modified plants / organisms

Microbial pesticide

The consist of microorganism such as bacterium , virus, fungus, protozoa, nematodes as active ingredients which are used for the biological control of plant pathogen, pestiferous insect and weed in agro- ecosystems . Most widely used microorganism within the development of bio pesticide is that the insect pathogenic bacterium bacillus thuringenisis. The bacterJim serves as an insecticide for most lepidoptera , coleopteran and diptera.

Biochemical pesticide

They are also known as herbal pesticide. These are naturally occurring substance used for controlling pests thorough a nontoxic mechanism. Biochemical pesticide fall into different biologically function classes, including pheromones and other semiochemical plant extract , and natural insect growth regulators.

semiochemical : A semiochemical from the Greek meaning signal is a chemical substance or mixture released by organism they affect the behaviours of other individuals semiochemical communication can be divided into two broad classes: 1) communication between individual of the same species (intraspecific) 2) communication between different species (intraspecific)

Mechanisms of Action to Avoid Pest Resistance

Plants are important sources of natural pesticides for centuries; for instance, tobacco plants like common tobacco are sources of the alkaloid nicotine (Dayan et al. 2009). Microorganisms also are wont to produce biopesticide active substances from lignocellulosic materials. Two species of the bacterial genus Saccharopolyspora produce spinosyns through the fermentation of carbohydrates or vegetative media. There are natural pesticides for the control of plant pathogens (bacteria or fungi), insects, and weeds, as well as natural products for the management of mammals and birds (repellents). The biological activities and mechanisms of action of those compounds are extremely variable. This phenomenon reflects the very fact that several of those natural products are derived from secondary metabolism pathways, which permit plants to guard themselves from their natural enemies. Thus, it's likely that natural products have biological activity against other organisms.

The mode of action (MoA) describes the precise biochemical interaction (target or site of action) to which bioactivity is attributed. MoA is usually differentiated from mechanism of action. However, both terms should be used without distinction. The MoA for these compounds isn't understood; examples within the literature include, saponins, momilactone B, azadirachtin, cinnamaldehyde , acetic acid, and pelargonic acid . In some instances, it is likely that they have multiple activities. Understanding Mechanism of action is prime because it clarifies the foremost effective and sustainable pesticide within the pest resistance management strategy.

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