

## Introduction

Biochemistry is a modern day science with a great interdisciplinary character. It has very close links with different branches of chemistry like analytical chemistry, colloidal chemistry and other branches of chemistry. It deals with various aspects of chemical processes from within and relating to all the living things. Its main role and goal is to focus on understanding the chemical basis and scenario of life that allows different biological components to come up together so that it give rise to various life processes that occurs within all living cells and between different kinds of cells. Biochemistry really helps us to know and explore molecular biology so that we can understand the life better. It is closely related to molecular biology, which deals with the mechanism of different molecules of biological importance [1-3].

Biochemistry has helped people around the globe to develop biopesticides which have proved to be very vital in curbing pest and controlling pests that has developed resistance against DDT and other chemicals and as a result are now becoming threat for the human survival. In the last 50 years or so a new branch of biochemistry has gained much more importance that is termed as Pesticide Biochemistry.

This branch of biochemistry deals with different modes of actions that help in the protection of plants by the use of certain chemicals such as Insecticides, Fungicides, Herbicides, Rodenticides, and Weedicides or similar nontoxic or lethal pest control agents. It also deals with the synthesis of pheromones, different sorts of hormones and plant resistance agents. This disciplinary biochemistry gives much more emphasis on Physiology of Comparative toxicity, different modes of actions, pathophysiology, resistance of pests, weeds and other sorts of relationship that occurs in nature between hosts and parasites [4].

Biopesticides are those kinds of pesticides that are derived from natural materials such as animals, plants, bacteria and some other minerals.

They are of three different categories:

**1. Plant incorporated protectants:** These are those pesticides that plants produce from the genetic material that has been added to the plant. For instance the scientists can take out the gene for the Bt pesticidal protein and introduce the genes into the plants own genetic material.

**2. Microbial pesticides:** These are the pesticides which have microorganism in it as an active ingredient (virus, bacteria and fungi).

These pesticides have the ability to control many different kinds of pests. For instance there are fungi that destroy and control different weeds.

**3. Biochemical pesticides:** These are naturally occurring chemicals that control pests by non-harmful methods. These pesticides have substances that interfere with mating, for example insect sex pheromones as well different scented extracts of plants which attracts different sort of insects.

## Advantages

Biopesticides is currently the need of hour as it has very few drawbacks and too many advantages.

Advantages are given below:

1. It is very less toxic in comparison to that of conventional pesticides.

2. It is target oriented so it only targets pests and closely related organisms, while we know that the traditional and conventional pesticides are broad spectrum it affects mammals, birds, insects and other organism.

3. It is used in very less quantity and decomposes very easily. Its shelf life is small in comparison to traditional pesticides. As, it decomposes rapidly in less time it doesn't deteriorate the environment and prevents pollution.

4. When we use it as a main component of Pest control programs, it can greatly deal with the pests; it reduces the use of traditional pesticides while crop yields remain very high.

In 1994 in United States and in Western Europe because of many advantages biopesticides became the first choice of preference and Environment Protection Agency started promoting the biopesticides manufacturing a registration process gets completed. EPA always conducts rigorous reviews to make sure that the registered pesticides don't deplete the environment. Registration of biopesticides in US takes very less time than traditional pesticides. Biopesticides are becoming an integral part of farmer's life and we believe much more research should be done on biopesticides so that we can further reduce its toxicity, can have sufficient data to convince EPA and FDA to make it easily available and to reduce its cost [5].

## References