

## BIOPESTICIDES: AN ALTERNATIVE TOOL FOR SUSTAINABLE AGRICULTURE

Preeti Chaudhary<sup>1</sup> & Vinita Choudhary<sup>2</sup>

<sup>1</sup>I.P. College, Bulandshahr, Uttar Pradesh, India

<sup>2</sup>G.D.C. RazanagarSwar, Rampur, Uttar Pradesh, India

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### ABSTRACT

*Indiscriminate and regular use of chemical pesticides has resulted in some undesirable effects on the environment and the overall sustainability of the environmental system. Due to the unbiodegradable nature of their constituent compounds, synthetic themselves chemical pesticides have severely affected both the biotic and abiotic components of the environment. They bio magnify themselves through food chain, causing serious health problems in human beings and other animals. Indiscriminate use of chemical pesticides also leads to development of resistant plant pathogen strains. There is an urgent need to adopt ecofriendly practices for safe and sustainable environment and protecting human health by reducing the use of toxic chemical pesticides. Ecofriendly approaches for sustainable agriculture are being practiced all over the world. Biopesticides are promising alternatives to chemical pesticides. Biopesticides are products and by-products of naturally occurring substances such as insects, nematodes, microorganisms as well as plants. Due to the high components of bioactive compounds and antimicrobial agents, microorganisms are the major sources of biopesticides. When applied in the right regimes, concentrations and appropriate frequencies, these biopesticides perform better than synthetic pesticides. Biopesticides controls pests by non-toxic mechanisms and in ecofriendly manner. Biopesticides are target specific, quickly decomposable and have little or no residual effects. They perform efficaciously with the flexibility of minimum application restrictions, and superior resistance management potential. Despite the many challenges facing the adoption of bio-based pesticides via integrated pest management (IPM), they still remain suitable alternatives to conventional pesticides. There are also studies on effectiveness of biopesticides under controlled environments and field conditions with varying results.*

**KEYWORDS:** Biopesticides, Chemical Pesticides, Sustainable Development, Integrated Pest Management (IPM).