

ACTINOBACTERIA AS BIOCONTROL AGENTS FOR COMBATING PEST INSECTS

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In the pursuit of profit and food security, in the condition of climate change, world agriculture, applying excessive various synthetic inputs, provoke many negative phenomena, which seriously affect human health and the state of the environment. Since the application of pesticide against pests and different hazardous to environment and human health, many efforts have been oriented in order to elaboration and application of ecologic friendly means.

To ensure the sustainable development of agriculture, many novel products have been discovered from the research and development on biological plant protection, which are superior in safety for humans and environmental. Among the microbiological means of plant protection, a special place belongs to actinobacteria, which are prevalent in soil, water, crops and environment. Thus, actinobacteria became as a good alternative for the management of crop pests. These, as well as the metabolites found in actinobacteria, serve to develop a significant range of effective and harmless preparations.

The avermectins, represents a group of macrocyclic lactones natural means homologues produced by the soil *Streptomyces avermitilis* and act as a complex of eight closely related avermectins, which demonstrate the highly pathogenic to many arthropods. Abamectin is considered as a selective pesticide, which has several advantageous traits include safe to humans and environment and low pathogeny to nontarget pests. Emamectin benzoate is a synthetic version of abamectin having broader insecticidal activity than abamectin. Milbemectin is an insecticidal and acaricidal product isolated from the fermentation broth of *Streptomyces hygroscopicus*, which are the secondary metabolites of actinobacteria. The polynactins are very effective against mites under high moisture conditions and have been utilized for the management of thus pests.

The spinosyns are a distinctive family of fermentation-derived insecticides, from *Saccharopolyspora spinosa* having potent activity against a large spectrum of insects and have lower environmental impact.

Our research is aimed at determining the morphological and cultural characteristics, the possibility of growing on various culture media, as well as the activity in the control of harmful insects, which cannot be effectively combated with other environmentally harmless means of protection.

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