CZU: 632.95:577

BIOPESTICIDES - AN ALTERNATIVE AND ECO-FRIENDLY SOURCE FOR THE CONTROL OF PESTS

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Chemical pesticides are widely used worldwide but they are ecologically unacceptable. Use of chemical pesticides has resulted in the disturbance of our environment (Gulhane *et al*., 2015). Due to the side effects of chemical pesticides, sustainable crop production through eco-friendly management is essentially required in the current scenario the biopesticides is ecofriendly pest control pesticides (Hubbard *et al*., 2014). Presently, about 8.5% of EU's agricultural area is farmed organically, and the trends show that with the present growth rate, the EU will reach 15-18% by 2030.

The global biopesticides market is projected to grow at a CAGR of 14.7% from an estimated value of USD 4.3 billion in 2020 to reach USD 8.5 billion by 2025. Widely used biopesticides are living organisms which are mostly pathogenic for the target species only These biopesticides are good alternatives to conventional insecticides for sustainable management of insect pests (Prabha et al., 2016).

The present paper gives information of *Bacillus thuringiensis* ssp. kurstaki preparats, we discuss how evolution, host range determination and pathogenesis have contributed to their inherent safety for non-target organisms including humans. The entomopathogenic microorganismsalso can accumulate themselves in the environment and the host population, and it can control the pest insects for a long term by forming epidemic disease in the pest insect population through the external environment stimulation. The quite stable food chain relation of plant-pest insect- natural enemy can be gradually established. Thus, it can reduce the risk of the pest insect continuous outbreak and realize the persistent control of pest insects.

Bacillus thuringiensis (Bt) are bacteria found naturally in the environments of every continent of the world. Some of the Bt strains are natural antagonists of some pests. A few Bt strains have been selected and commercialized as biological pest control products. These commercialized Bt strains are valuable to agriculture and public health because of their unique ability to naturally control certain destructive and disease-carrying insect pests while avoiding harm to non-target organisms (such as beneficial insects, people, other mammals, and fish). Biological insect control products based on Bt strains have been used safely and effectively in practical field conditions for more than 50 years.

***Acknowledgements*:** Research was carried out within the State Program project nr. 20.80009.7007.16. “Synergism between natural factors and ecologically harmless microbiological means of regulating the population density of harmful organisms for the protection of agricultural crops in conventional and ecological agriculture”, funded by the National Agency for Research and Development of Republic of Moldova.

Keywords: *Bacillus thuringiensis* (Bt), biopesticide, pathogenesis, target specie, pest.