

THE INFLUENCE OF MICROBIAL INOCULATES ON MORPHOLOGICAL TRAITS IN PLANTS

Summary

Conventional methods of crop protection, which are commonly applied in agriculture, have contributed to soil acidification and reduced level of soil fertility, and, in consequence, to degradation of the environment. At present, there are carried numerous investigations to limit the use of chemicals in agriculture by introducing into trade biologically effective preparations, as an alternative to the conventional crop protection products. They are supposed to protect plants from pathogens and to positively affect the growth and development of crops. Bio-preparations have been applied in agriculture and horticulture, increasing assimilation of the elements which are not easily accessible to plants, preventing thus the process of soil rotting and improving the conditions of humus production. There is a wide range of microbial preparations on the market. They can be applied into the soil or leaves. One example of such products is a preparation containing bacteria fixing atmospheric nitrogen. Symbiotic rhizobia in microbial preparations contribute to the nitrogen assimilation by Fabaceae plants unable to assimilate

nitrogen in sufficient amount. There are also available mycorrhizal preparations, which exert positive influence on the growth and development of plants and protect them from pathogens. Some microbial preparations contain vaccines prepared from *Trichoderma* sp. molds. They produce antibiotics and enzymes degrading pathogen cell walls and thus, they contribute to plant protection. Azotobacterine and phosphobacterine are other examples of microbial preparations used in plant cultivation containing microorganisms able to provide phosphorus or nitrogen, respectively, to the soil. Entomopathogenic preparations are the subject of great interest, especially in organic farming. These preparations contain microbial insecticides, which limit the population of pest insects. The EM (Effective Microorganisms) inoculate, is a controversial microbial preparation due to its broad spectrum of actions. It contains appropriately selected strains of microorganisms, which have positive influence on morphological traits in plants and on the substrate quality.