

SOME ASPECTS OF DEVELOPING MICROBIAL PREPARATIONS FOR PLANT PROTECTION

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The basis of microbial means of plant protection against diseases is live cultures of microorganisms with high virulence and their metabolic products. The leading role in the biological control of plant diseases is assigned to microscopic fungi. A special place is occupied by the genus *Trichoderma* Pers. ex Fr. The advantages are a high growth rate, a wide range of antifungal activity, and simple equipment for cultivation on an industrial scale.

The biopreparation production technology constitutes the cultivation of the fungus-producer in a liquid nutrient medium in a bioreactor or on a microbiological shaker for 72-96 hours. An important step in obtaining effective biopreparations is the selection of the optimal nutrient medium for cultivating the bioagent. Modification of nutrient media according to the main sources of nutrition of microorganisms (carbon, nitrogen) promotes the formation of biologically active substances that have an inhibitory effect on phytopathogens. This action can be strengthened or weakened.

During the evaluation of the fungicidal action spectrum of the liquid biopreparation Gliocladin-SC (the active substance is the fungus *Trichoderma virens* Miller, Giddens, and Foster), 18 pathogenic agents of crop diseases causative agents were identified (Scerbacova T., 2019). Several liquid nutrient media were used in the present work. When the medium composition changed according to the carbon source, in addition to chlamydo spores, conidia and blastospores were formed. The zones of *Sclerotinia sclerotiorum* pathogens inhibition growth (Fig. 1) and *Botrytis cinerea* expanded, and the antifungal effect against pathogens of fruit crops *Monilia cinerea* and *M. fructigena* also increased. The preparation fabricated on the base of that nutrient medium was tested on “Krupnoplodnyi” sweet cherries variety to suppress the development of moniliosis. After two treatments with 1% concentration, the disease development reduction efficiency was 91.8% (Scerbacova T. et al., 2015).



Figure 1. Growth inhibition zones of the pathogen *S. sclerotiorum* with Gliocladin-SC biopreparation based on media with different compositions

In the result of the conducted research, it was found that for the successful application of Gliocladin-SC biopreparation in plant protection against a wide range of diseases, separate balanced nutrient media for controlling different groups of pathogens are needed.

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