APPLICATION OF MICROORGANISMS IN FUNGUS CULTIVATION

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Introduction. Climatic conditions of Ukraine and different cellulose containing wastes large quantities availability cause the possibility of medicinal mushrooms large number cultivation. For quality fruit bodies obtaining they should be implemented the measures to combat pests. Pesticides are traditionally used for this mean. The chemical method disadvantage is that pesticides can be used only as a preventive means. At the moment when environmentally safe agriculture and medicinal plants cultivation it is recommended the using of biopreparations, based on safe for human microorganisms, mostly of the genus Bacillus, for the pests destruction. Similar drugs for the edible and medicinal mushrooms protection are absent.

Aim. The entomopathogenic microbial preparation against the most wide spread pests of medicinal mushrooms creation and using.

Materials and Methods. There are mushrooms with medicinal properties: *Auricularia auricula*, *Ganoderma lucidum*, *Lentinus edodes*, *Pleurotus ostreatus* were used as the models. Microbial preparations entomopathogenic action determined in relation to mushroom mosquito larvae *Bradysia pilistriata*, which are the most common *Pleurotus ostreatus* pests in the Odessa region.

It was studied the entomopathogenic action of 183 bacterial isolates of the genus *Bacillus*, isolated from the mushrooms fruit bodies and the cultivation substrate. Besides, it was established the opportunity of microbial drug Bactokulicyde mass production and industrial strain *Bacillus thuringiensis var. israilensis VKPM-B-3313*, which is the Bactokulicyde current ingredient, using against fungal mosquito larvae [1].

The investigated strains bacterial suspensions were put as aerosol on the mushroom substrate surface with mushroom mosquito larvae. Bactokulicyde powder was put on by spraying. Microbial preparation based on selected bacterial strain in liquid form was made in equipment for bacterial preparations for plant protection production. Bacilli were cultivated on selected structure nutritive media.

Created biopreparation was used for mushroom mosquito larvae destruction. On the fungal blocks batch production surface (substrate is straw, unit weight is 15kg) put on a bacterial suspension. Larvaecyde effectiveness was noted on the mosquito larvae death and naked substrate growing by fungal mycelium [2].

Results. It was found that mycelium of all of the studied mushrooms was destroyed by mosquito larvae *Bradysia pilistriata*. Bactokulicyde and *B. thuringiensis B-3313* processing did not lead to the larvae *Bradysia pilistriata* death. So, it must be used a specific larvaecyde strain to combat *Bradysia pilistriata*,.

The larvaecyde action of 183 bacterial isolates from materials? samples, selected from the possible places of mushroom mosquito epizootion, was studied. Four strains, which on the second-third day of using caused 56 - 98% loss of mushroom mosquito larvae (in control - 4 - 7%) were revealed. It was observed sporecrystalline complex at the selected entomopathogenic strains by microscopic research.

Based on the most effective strain of Bacillus sp.15, selected from the edible mushroom, developed larvaecyde microbial drug production technology. Using nutritive media matched mixture, biopreparation with microbial cells concentration of n x 109 KUO/ml and spores concentration - n x 107 KUO / ml is obtaining. Technological cycle lasts for 72 hours.

Produced microbial drug must be weekly applied to the *Pleurotus ostreatus* fungal blocks surface to control mushroom mosquito larvae. The drug bringing in the slit is the most effective. The drug has not oocyde action. Larvae began to develop in experimental variants, and died on the second-third day. Because of myc-

elium recycling by 1-2 age larvae, it was observed substrate balding areas appearing. It was noted mycelium gradual ticketing of previously damaged areas after the drug applying. Microbial drug did not brake mycelium develop and fruit bodies formation. Mushrooms, collected from the processed microbial drug substrate blocs, were undamaged by insects. In control version larvae reached pupa stage and imagoes appeared. Extend of damage mushroom blocks, not protected by drug, steadily grew in the dynamics.

Conclusion. It was obtained a high effective larvaecyde preparation against mushroom mosquito *Bradysia pilistriata* on the basis of the strain *Bacillus sp.15* as a result of the developed investigations. The researches concerning to medicinal mushrooms? pests composition and microorganisms selection for biopreparations creation for their destruction is continue.

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