

EFFECT OF DIFFERENT FORMS OF FUNGAL BIOPREPARATION FOR INCREASING QUALITY OF *PICEA OBOVATA* SEEDLINGS

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The current stage of societal development is characterized by ecological deterioration, with the application of chemicals for the prevention of pests and plant diseases giving rise to new problems in environmental protection.

Artificial forest regeneration in Siberia is due to annual wild fires and major human activity. Forest nurseries are located in these areas, which were previously used for growing agricultural plants. Due to this previous use, there is a problem of high seedling mortality from *Fusarium* spp. introduced to the soil with seeds and plant residues of cultivated crops.

Reforestation of Siberian forests is one of the most important tasks facing Russian forestry in the Siberian and Krasnoyarsk regions. The most dangerous pathogens of infectious damping-off for conifer seedlings are in the genus *Fusarium*, *Alternaria*, and *Pythium*, which are responsible for great losses of conifer seedlings in Siberia forest nurseries. The species with the greatest ecological importance in forest nurseries of Siberia are *Fusarium* spp. including *F. oxysporum*, *F. oxysporum* var. *orthoceras*, *F. moniliforme*, *F. sporotrichiella* var. *poae*, *F. nivale*.

Using integrated pest management, biological methods are becoming more available for the protection of conifer seedlings from diseases. *Trichoderma harzianum* is an effective biocontrol agent against several fungal soilborne plant pathogens. The objective of the present work was to examine two preparations of the beneficial *Trichoderma harzianum* (strain U): “Trichodermin C” and “Trichodermin BL.” From 1995 to 1999, the biopreparations were tested in the protection of *Picea obovata* L. seedlings. Seedlings were grown in both a phytotron and in forest nurseries near Krasnoyarsk.

It was determined that application of the biocontrol agent had significant effect on height of *Picea obovata* seedlings. Use of “Trichodermin C” for seed treatment increased the growth of root systems, amount of needles and concentration of chlorophyll. It was found that a maximum quantity of healthy seedlings was obtained with the biological preparation “Trichodermin BL.” From these results, it is evident that both preparations have commercial potential for use as biocontrol agents in the forest nursery industry as alternatives to chemical fumigation.