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RESISTANCE OF YOUNG TREES CAUSED BY HEAVY METALS SUCH AS Cs AND Cd

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Abstract

Using lab experiments, the heavy metal tolerance of young ectomycorrhizal trees was assessed in two axenic systems, co-cultures on germination medium and a sandwich technique system with Modified Melin-Nokrans medium. Sterilized seeds of the tree species Scots pine (*Pinus sylvestris*) and Norway spruce (*Picea abies*) were inoculated with the ectomycorrhizal fungi *Paxillus involutus* and/or *Tricholoma vaccinum* in media containing either 10 mM CsCl or 0.25 mM CdCl₂. The behavior of the seedlings and young trees was investigated over a period of eight weeks. The young mycorrhizal trees showed an increased biomass in comparison to non-mycorrhizal trees. The heavy metals induced stress was visible in reduced germination capacity, reddish colored, instable stems, reduced growth and increased lethality during the first six weeks of growth which was clearly relieved in mycorrhizal association. The results may be important for remediation actions and re-forestation programs.

Key words: ectomycorrhiza, heavy metals, tree growth

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