

## Rapid nursery system for ectomycorrhizal seedlings of boreal forest tree species

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**Purpose:** The Japanese white birch (*Betula platyphylla var. japonica*) is a fast growing tree that is native to Hokkaido, and is known to be symbiotic with various ectomycorrhizal fungi. Studies on mycorrhizal seedlings for edible mushroom cultivation have just begun, and there are various problems, such as enlargement of the seedlings and shortening of the nursery period. Therefore, in this study, we examined a method for the rapid growth of mycorrhizal seedlings using the fast growing birch.

**Methods:** After the pre-moist chilling treatment, the birch seeds were sown on sterilized borax, grown for about one month, and developed for one month using a hydroponic culture vessel. Then, they were grown for 46 weeks with mycorrhizal fungus inoculum, and the growth condition was observed every 4 weeks.

**Results:** The result shows that until the 12th week, root hairs were found throughout the root system and no mycorrhizae formation was confirmed, but at 16 to 20 weeks, the disappearance of root hairs and mycorrhizae formation gradually started, and the developed mycorrhizae was confirmed at the 24th week. At 46 weeks after inoculation of mycorrhizal fungi, the height of the seedlings reached approximately 65 cm.

**Conclusions:** From the above, it was thought that the combination of a fast-growing tree with hydroponic culture makes it possible to grow large mycorrhizal synthetic seedlings that can be planted in a short period.