

B558 Growth and Photosynthetic Rate of *Pinus densiflora* Seedlings Grown in Artificially Acidified Soils

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Growth and photosynthetic rate of 2-year-old *Pinus densiflora* seedlings grown in an acidified brown forest soil originated from granite by adding to H₂SO₄ solution were investigated. The pH decreased, while the concentration of Al in the soil solution increased with increasing the amount of H⁺ added as H₂SO₄ solution to the soil. The dry weight of the seedlings reduced with increasing the amount of H⁺ addition to the soil. At the same time, the Al concentrations in the seedlings were increased, while the concentration of Ca and Mg in the plant were decreased. The net photosynthetic rate of the seedlings were reduced with increasing the amount of H⁺ to the soil. In the seedlings grown in the acidified soil, the quantum yield and carboxylation efficiency of photosynthesis were reduced. This fact suggested that the soil acidification induced an inhibition of photochemical reactions and CO₂ fixation of photosynthesis.

B559 Aboveground Biomass and Nutrient Contents in 31-Year-Old Pitch Pine (*Pinus rigida*) and Japanese Larch (*Larix leptolepis*) Stands

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Aboveground biomass and nutrient contents of 31-year-old pitch pine (*Pinus rigida*) and Japanese larch (*Larix leptolepis*) stands were measured in the Chungbu Forest Experiment Station, Kyunggi Province. Aboveground biomass was 170.2 ton/ha in the pine and 87.2 ton/ha in the larch plantations. Aboveground biomass difference between both stands was due to the difference of stand density. The concentrations of all nutrients (N, P, K, Ca, Mg) were generally higher in the larch than in the pine because of high nutrient uptake characteristics. Nutrient contents of aboveground biomass were : N, 335.9; P, 40.4; K, 121.4; Ca, 188.6; Mg, 93.8 kg/ha in the pine stand, while nutrient contents in the larch stand were : N, 226; P, 11.5; K, 72.9; Ca, 75.7; Mg, 37.1 kg/ha. The nitrogen use efficiency calculated as the biomass produced by one unit of nitrogen was higher in the pine than in the larch stands. This result suggests that pine with high nitrogen use efficiency could be adapted in low site productivity area compared with larch tree species.