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Effects of Sewage Sludge Treatment on the Growth and Chemical Composition of Altari Radish (*Raphanus sativus*)

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The effects of municipal sewage sludge as nutrients on the growth and chemical composition of Altari radish (*Raphanus sativus*) was observed. The accumulation rate of heavy metals of the sludge in the radish was also observed. Municipal sewage sludge was applied to the soil to make 6 gradients of sludge contents in the soil. The longest leaves and roots were produced in the control group, in which urea was applied as nitrogen source to the soil. The length of the leaves and roots and the weight of the whole plant of the radish tended to increase with the increase of the sludge application. Contents of N, K, Ca and Mg in the radish were not significantly different among those in 6 experimental groups. Accumulations of Zn, Mn and Cd were higher in leaves than in roots, but less than natural contents of those in market vegetables. From the above results, it is concluded that municipal sewage sludge can be applied as organic fertilizer to the growth of Altari radish. But this sludge could not be applied under our current regulations, which must be reviewed at intra-governmental levels.

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Studies on the Decomposition of Leaf Litter in Temperate Forest in Korea

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Changes of the dry weight, nutritional element content, and organic chemicals content of leaf litter in six tree species were studied using litter-bag method at Mt. Cheonma in the vicinity of Seoul in Korea. The decomposition rate varies within tree species. Leaf litter of *Carpinus laxiflora* showed the highest decomposition rate, 1.19 years of half time, and *Quercus serrata* showed the lowest decomposition rate, 2.66 years of half time. During the decomposition, P, Fe, N, and Ca content showed slower decreasing pattern than the loss of dry weight of leaf litter, but Na, K, and soluble organic chemicals strikingly decreased at early decomposition stage. However, Mg showed different decreasing pattern along with leaf litter species. Decomposition rate of each litter species was affected by the content of various organic chemicals in initial leaf litter. Soluble carbohydrate and N content positively correlated with decomposition rate of each species, but holocellulose, lignin, and C/N were correlated negatively.