

Putchanat Sang-on 2007: Litterfall and Litter Decomposition in Exotic Tree Plantations at Doi Angkhang Chiang Mai Province. Master of Science (Forestry), Major Field: Silviculture, Department of Silviculture. Thesis Advisor: Mr. Roongreang Poolsiri, Dr.nat.techn. 131 pages.

The study on litterfall and litter decomposition in exotic tree plantations of *Acacia confusa*, *Fraxinus griffithii*, *Liquidambar formosana*, *Cinnamomum camphora* and *Cunninghamia lanceolata* were carried out at Doi Angkhang Chiang Mai Province during November 2004 to October 2005. The objectives were to study litterfall, decomposition, and mineral release from litter. The study on litterfall was monthly collected from the litter traps, and then separated leaf, branch, bark, reproductive, and the others for chemical analysis. Litter decomposition was studied by the litter bag method. The remaining leaf litters in the litter bags were oven-dried and weighed every month for analyzed the litter decomposition and mineral release.

The results showed that *L. formosana* produced the highest annual litterfall production followed by the *A. confusa*, *F. griffithii*, *C. camphora* and *C. lanceolata* were 7.5262, 6.9887, 6.0760, 5.2686, and 3.5584 tons per hectare, respectively. The litterfall production was highest in dry season and lowest in rainy season. The annual leaves litter decomposition was fastest in *C. camphora* (72.43%) followed by *F. griffithii* (61.78%), *L. formosana* (57.39%), *A. confusa* (48.36%) and *C. lanceolata* (23.99%), and their annual decay constant (k) were 1.2886, 0.9620, 0.8530, 0.6609 and 0.2743, respectively. The mean dry weight loss per month of whole litters had a positive correlation with temperature, relative humidity, and precipitation of the study area. The concentrations of N, P, and Ca were decreasing at the early stage of study period and were increased at the later stage; the concentration of K were rapidly decreasing at the early stage of decomposition and were increased at the last stage, while the concentration of Mg tended to decline with the increasing decomposition time.

The highest rate of nutrient release by litter decomposition was N followed by Ca, K, Mg, and P, respectively. The rate of nutrient release of *L. formosana* was highest and *C. lanceolata* was lowest.

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Student's signature



Thesis Advisor's signature

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