

Litter fall and decomposition in a Lowland Mixed Dipterocarp Forest and an *Acacia mangium* Plantation in Sarawak, Malaysia

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This study is part of a larger study entitled 'Decomposition Processes in Asian Tropical Forests'. The purpose is to compare the litter fall pattern, decomposition rate and phenology of two lowland forests; a mixed dipterocarp forest and an *Acacia mangium* plantation located west of Sarawak.

Sampling of litter fall was done monthly using litter traps placed one each on the corner of every one of the 25 quadrates. The sampling of the forest floor litter was also done monthly for 12 months. The relationship between the estimated monthly forest floor litter and litter fall was used to determine decomposition rate or turnover coefficient (k_L). To determine the influence of rainfall on litter fall production, the monthly rainfall data was recalculated from the day of litter fall collection to the day of preceding month of the subsequent collection month.

The litter fall for the natural forest was slightly less but with higher leaf composition compared to a similar studies in lowland dipterocarp forest north east of Sarawak. Litter fall peaks were recorded during the drier periods. Litter production in the plantation forest was much higher as compared to the natural forest even though tree density was much less. Higher litter fall was contributed to higher proportion of flowers and fruits, which was 11.4 % as compared to 3.4 % in the natural forest. Leaf fall pattern of the pioneer tree species was observed to be similar to the trees of the natural forest. Higher rate of decomposition seems to be influenced by higher rainfall. However moist and warm condition in the plantation forest floor rather than cold and wet forest floor in the natural forest may be more conducive for faster rate of forest floor litter decomposition. Litter fall pattern and composition of both forests are further suggested and discussed.