

**PELEPASAN UNSUR HARA DALAM PROSES  
DEKOMPOSISI SERESAH SEBAGAI PETUNJUK  
AKTIVITAS MIKROORGANISME DI BAWAH  
TEGAKAN ACACIA MANGIUM**

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**ABSTRACT**

Decomposition of plant residues is influenced by number of factors, in particular the quality of raw material, environmental conditions and decomposer organisms involved. Among the decomposer organisms, fungi and bacteria play a center role because they are responsible for the major chemical transformation and nutrient release during decomposition. Changes in nutrient status of plant residue during decomposition reflect the activity of decomposer organisms. This experiment was aimed to evaluate litter production of *Acacia mangium* stand and the changes of nutrient release in decomposition of *A. mangium*'s litter and used as the indicator of decomposer microorganisms activity.

Litter production and nutrient release patterns during the decomposition of *A. mangium* were investigated under field condition in Wanagama Forest Research Station. Litter was collected using 1 X 1 m screen litter-trap with 0.5 x 0.5 cm mesh size at 4-week intervals. Three litter traps were randomly installed under the *A. mangium* stand in Wanagama I. The process of decomposition was studied using modified multi-layered traps using the sama screen material as the trap and in 1 X 1 X 1 m containers made of brick-boxes.

Based on the figures measured in the litter traps, it was calculated that litter production of 15 years age of *A. mangium* stand in Wanagama was estimated at the amount of 6,9965 tons per ha in 6 months, which fluctuated by month. The amount and materials composing the litter differed depending upon the reproductive growth of the trees and climate. Specific pattern of nutrient content, particularly nitrogen, in plant residue during decomposition was observed, where in the first 8 weeks decreased dramatically and then increased steadily at the following weeks. Since the nitrogen released from the plant residue is mostly determined by microorganism activity. The initial high content of lignin and cellulose of the plant residue was likely the reason why the activity of decomposers decreased in the first 8 weeks of decomposition. The result of decomposition study also indicated that the rate of the process was accelerated by mixing the litter with prunings of leucaena and gliricidea or by the addition of decomposer-rich *A. mangium* litter.

Key words : *A. mangium*, litter production, decomposition

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