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Nutrient input and decomposition in high and low quality lowland secondary tropical rain forests

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The nutrient cycle is the basic study necessary to determine the amount of organic matter and nutrient available in the soil. Litter fall and the decomposition of organic matter are primary aspects of nutrient cycling and it is well known that both may vary according to the stage of secondary succession. The research was conducted in the HRF, Batang Hari Regency, Jambi province. The research was in collaboration with CRC990 (Efforts) University of Gottingen, Germany. The study sites was selected in lowland secondary forest, within the HRF, Sumatera.

Litter traps was installed in paired (close proximity) high and low secondary forest sites, replicated 6 times. Litter fall, decomposition and organic matter samples was conducted by sampling every month for a 1 year period. And decomposition will be measured at the location of each litter trap.

The preliminary result found that, the total soil organic carbon in top soil (0-5 cm) in high secondary forest (5.78 %) higher than low secondary forest (4.19) about 27.51 %. Total organic carbon decreased following the soil depth of each forest types. Total N in high secondary forest (0.39 %) higher than low secondary forest (0.30%). The highest Ca is 38.14 cmol/kg of soil, it is found in high secondary forest, in top soil. The lowest Ca is 3.50 cmol/kg also found in high secondary forest in 60-80 cm depth. The data of soil nutrient content will be use for suitability of land and determine of suitable plant for status of soil nutrient.

The mean litter fall production during first quarter for high secondary forest is 87.96 g/m², and for low secondary forest is 61.41 g/m². Litter fall production higher in high secondary forest than low secondary forest about 18.15 %. Nutrient content of litter fall in high secondary forest is similar in comparison with low secondary forest. Component of plant tissue such as cellulose, hemicellulose, lignin and tannin and the value following the sequence high and low secondary forest is (cellulose 27.27 , 26, 98 %; hemicellulosa 17.54 , 18.20 %; lignin 51.77 , 50.35% ; tannin 1.80 , 2.56%)

key word : Litter fall, nutrient input, nutrient cycle, decomposition and ecosystem restoration