

Decomposition of leaf and fine root residues of three different crop species in tropical peat under controlled condition.

ABSTRACT

A study examining the decomposition rates of leaf and fine root residues of oil palm (*Elaeis guineensis*), sago (*Metroxylon sagu*) and pineapple (*Ananas comosus*) crops in peatland soils was conducted under controlled conditions. The fourteen-month study showed that sago leaf residue was the most resistant to decomposition with only 30 % mass loss, while pineapple leaf residue was found to be the easiest to decompose, accounting for 90 % of the mass loss. In contrast, the highest (70 %) mass loss of fine roots was observed in sago, while the lowest (50 %) was in pineapple. Nutrient concentration in plant tissues correlated significantly with mass losses of leaf and fine root residues. The high C:N in plant tissues, resulted in slow decomposition of sago leaves and pineapple fine roots. Decomposition of the different plants were in the order: pineapple > oil palm > sago drained = sago undrained for leaf residues, and, sago drained = sago undrained > oil palm > pineapple for fine root residues.

Keyword: C:N ratio; Mass loss; Oil palm; Pineapple; Sago; Tropical peat.