B-48: Characterization of soil organic matter

H P W R Priyanth[1], L H J Van Holm[1], K A Nandasena[2]
([1]BNF Project, Institute of Fundamental Studies, Kandy. [2]Faculty of Agric Univ of Peradeniya)

This investigation was undertaken to study the microbial activity and decomposition rate of organic materials of different origin, such as rice straw, coir dust, farmyard manure and dry gliricidia leaves. The materials were incorporated at the rates of 10 and 20 t/ha with 3 soils representing different organic matter content, from Kandy, Matara and Anuradhapura. During the incubation, microbial activity was measured by trapping the CO_2 produced. The total microbial count and organic matter fractionation were measured, before as well as after incubation. The increment of carbon % due to the addition of organic materials were also determined.

The microbial activity increased after rewetting the soil. The organic matter addition increased the CO_2 production in all materials except coir dust and increasing the dose enhanced the effect. Fresh organic materials (rice straw and gliricidia) had a significantly higher effect compared to farmyard manure and coir dust. The total microbial count showed no significant difference among the treatments but there was a slight increase when increasing the dose.

The organic matter fractionation study before and after incubation showed significant difference between the fractions. There was an effect of the materials and the dose applied. Fresh organic materials as gliricidia increased all fractions. Fibre rich material such as rice straw and coir dust enchanced mainly the humic fraction after the incubation period.