

CARBON FRACTIONS AND NUTRIENT STATUS OF SOILS IN IRANAMADHU IRRIGATION COMMAND AREA, KILINCHCHI

S. Raguraj¹, R.R. Ratnayake², N.Gnanavelrajah¹

¹Faculty of Agriculture, University of Jaffna, Sri Lanka.

²Institute of Fundamental Studies, Hantana Road, Kandy, Sri Lanka.

ABSTRACT

Increasing population imposes demand on agricultural output which often leads to degradation of natural resources. Carbon sequestration is a crucial process which increases soil fertility at the mean time reduces the green house emission. This study was carried out in uplands and lowlands of Iranamadhu irrigation command area of Kilinochchi district. The upland and low lands were further divided into cultivated and uncultivated areas. Total organic carbon (TOC), microbial biomass carbon (MBC), KMnO₄ oxidizable carbon (POC) and water soluble carbon (WSC) were measured in two depths (0-20cm and 20-40cm) in both cultivated and uncultivated areas of upland and lowland. The experimental design was a three factor factorial with three replicates. TOC, MBC, WSC and POC were ranged from 0.07 - 1.02%, 0.001 – 0.016%, 0.002 – 0.101% and 13.65 – 690.12 mg/kg respectively. TOC was significantly higher in upland soils compared to low land areas. On the other hand TOC was significantly higher in surface soils than sub-surface soils. Microbial biomass carbon was significantly higher in uncultivated areas than cultivated areas while higher in top layer than sub-surface layer. Neither POC nor WSC had any significant difference with elevation, land use and depth wise. This experiment shows that, carbon sequestration potential is high in upland areas of uncultivated soils compared to lowland soils.