



Soil Organic Carbon and Soil Respiration in Dry Deciduous Forest and Grass Land of Kadapa hill ranges, Andhra Pradesh, India

C. Venkata Ramana and M. Sridhar Reddy*

Department of Environmental Science, Yogi Vemana University, Kadapa-516 005, India

*E-mail: sridharmullangi@yahoo.com

Abstract: Soil organic carbon (SOC) and soil respiration (SR) were estimated in two different land uses (dry deciduous forest and grass land). The estimated SOC down to 30 cm depth was 36.35 Mg C ha⁻¹ and 8.69 Mg C ha⁻¹ in forest and grass land respectively. On forest and grassland, SOC at 0-10 cm and 10-30 cm were 44.67 Mg C ha⁻¹ and 28.47 Mg C ha⁻¹ and 10.14 Mg C ha⁻¹ and 7.24 Mg C ha⁻¹, respectively. On grass land, SOC were 10.14 Mg C ha⁻¹ and 7.24 Mg C ha⁻¹ at the 0-10 cm and 10-30 cm. SOC decreased from top surface layer to sub surface layer in both land use. Lower bulk density values were in dry deciduous forest (1.46 g cm⁻³) than grass land (1.61 g cm⁻³) revealing a significant negative correlation between SOC and BD. The soil respiration rate in the forest was 107.8 CO₂ mg/m²/h but was low in grass land (31.16 CO₂ mg/m²/h). A strong positive correlation existed between SR and SOC values.

Keywords: Bulk density, Dry deciduous forest, Grass land, Soil organic carbon, Soil respiration
