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Research Article

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Distribution of organic carbon in particle size fractions of a red soil under long-term fertilization

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Summary

Soil samples were collected from two depths *i.e.*, 0-15 and 15-30 from the long term experiment field at Zonal Agricultural Research Station, GKVK Bengaluru after harvest of maize in the year 2008 to study the soil organic carbon (SOC) distribution in particle size fractions. The soil was sandy loam of texture with acidic pH and low organic carbon status. The results of the study revealed that the soil pH was decreased due to the imbalanced fertilizer treatments and was maintained near initial level due to treatments involving both balanced fertilizers and FYM addition. The use of organics alone or organics along with fertilizers resulted in build up of SOC compared to use of only inorganic fertilizers. Soil organic carbon estimation in each size fraction indicated that the clay fraction had the highest OC concentration followed by silt and sand in the both depths of the soil. Soil organic carbon in sand declined rapidly upon cultivation, mostly due to oxidation and disintegration of unstable aggregates to enter silt-size or clay-size fraction because of intensive cultivation of the soil for 25 years. The study revealed that C was very slowly sequestered in the clay and silt fractions of the soil.

Key words : Soil organic carbon, Particle size fractions, Carbon enrichment ratio, Carbon sequestration

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