

Impact of Charred Firewood on Soil Properties of Regosols in Jaffna Peninsula

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Charred Firewood (CF) could be used to enhance agricultural productivity by improving soil quality. A laboratory incubation study was conducted for 12 weeks to find out the effect of application of CF alone and in combination with inorganic fertilizers on selected properties of Regosols of Jaffna peninsula. Treatments were T_0 (control), T_1 (CF), T_2 (NPK fertilizer), and T_3 ($\frac{1}{2}$ CF + $\frac{1}{2}$ NPK fertilizer). Complete randomized design was used with three replicates. Results of incubation experiment indicated that pH of soil significantly increased in T_1 (CF) and decreased in T_2 (NPK fertilizer). Available N was significantly higher in T_3 ($\frac{1}{2}$ CF + $\frac{1}{2}$ NPK fertilizer) and T_2 (NPK fertilizers) compared T_1 and T_0 . Available P was significantly increased in T_2 (NPK fertilizer) followed by T_1 (CF) and T_3 ($\frac{1}{2}$ CF + $\frac{1}{2}$ NPK fertilizer) compared to T_0 . Available K was significantly increased in T_1 (CF), T_3 ($\frac{1}{2}$ CF + $\frac{1}{2}$ NPK fertilizer) and T_2 (NPK fertilizer) compared to control. EC was significantly increased in NPK fertilizer followed by T_3 ($\frac{1}{2}$ CF + $\frac{1}{2}$ NPK fertilizer) and T_1 (CF) compared to control. Cation exchange capacity and microbial biomass carbon were significantly increased with T_1 (CF) compared to other treatments. Results indicate that though CF alone has a negative effect on soil pH during initial stage CF has potential to enhance the soil fertility parameters such as nutrient availability, cation exchange capacity and microbial biomass in Regosols of Jaffna Peninsula.

Key words: Regosols, CF, Soil nutrients, Soil properties.