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**EFFECT OF DIFFERENT LEVEL OF SALINITY ON ORGANIC
MANURE DECOMPOSITION**

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ABSTRACT

Soil salinization is one of the major factors that contribute to land degradation and decrease in crop yield. As it is believed that soil salinity can alter the organic manure turnover process, the present study discussed the influence of soil salinity on decomposition of organic manure and nutrient availability. Cow dung and paddy straw were chosen as organic amendments for this experiment and applied at the rate of 10 tons/ ha. Manure decomposition and nutrient availability studied at three salinity levels (1500 ppm, 2000ppm and 2500ppm). The study was arranged in a completely randomized design (CRD) using 7 treatments and replicated three times. The treatments were; T1- Control (no organic matter and salt), T2-1500ppm Salt + cow dung, T3-2000ppm Salt + cow dung, T4-2500ppm Salt + cow dung, T5-1500ppm Salt + paddy straw, T6-2000ppm Salt+ paddy straw, T7-2500ppm Salt+ paddy straw. Treatments were incubated at 25°C for 42 days. Generated data were subjected to analysis of variance (ANOVA) using the SAS software. Treatment means were compared at probability $p < 0.05$ using LSD.

This study did not show any significant ($P \leq 0.05$) variation in the amount of $\text{CO}_2\text{-C}$ release from the cow dung amended soil at all salt concentration. In the case of paddy straw amended soils $\text{CO}_2\text{-C}$ releasing pattern was found to be influenced by the salt stress. Among the paddy straw amended soil, 1500ppm salt concentration recorded higher cumulative $\text{CO}_2\text{-C}$ release (228.8mg/100g) and 2500ppm salt concentration recorded lower value (194.7mg/100g) of $\text{CO}_2\text{-C}$ release.

The application of cow dung and paddy straw resulted in significant decrease in organic carbon (OC) at different concentration of salinity. Among the organic manure

applied soil, paddy straw amended soil had higher organic carbon content (1.16 %) than cow dung amended soil.

Control soil had lowest nitrogen (N), Phosphorus (P) and Potassium (K) content compared to organic manure amended salt treated soil at the end of the incubation. With increasing salt concentration nutrient availability was decreased in manure amended soil. Cow dung amended soil recorded highest nitrogen content (0.223%) at 1500ppm salt concentration and paddy straw recorded low nitrogen content (0.141%) at 2500ppm concentration. Highest potassium (K) content (158.33ppm) was observed in paddy straw treated soil at 1500ppm salt concentration and lower value (108.33 ppm) was recorded in cow dung treated soil at 2500ppm salt concentration. Highest available phosphorus (P) content (110.14ppm) was observed in cow dung treated soil at 1500 ppm salt concentration and low value (77.59 ppm) observed in paddy straw treated soil at 2500ppm salt concentration.

Results could be concluded that the response pattern of decomposition of organic manure incorporated to the soil and nutrient changes depended on salinity stress and duration of incubation.

Key words: Organic manure, Salinity, Decomposition, Nitrogen, Phosphorous, Potassium.

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