

SOME ELECTRO-CHEMICAL CHANGES AND NUTRIENT RELEASING
PATTERN IN ORGANIC MANURE INCORPORATED RICE SOILS

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A two month incubation experiment was conducted to study the electro-chemical changes and nutrient releasing pattern of organic manure incorporated rice soils. Rice straw and Tithonia diversifolia (wild sunflower) were incorporated into nutrient deficient sandy soils (Aquults), at the rates of 3,6 and 9 t/ha. (fresh weight basis).

No significant changes between treatments were observed in pH and Eh of the soil solution. However, the electrical conductivity of the soil solution increased significantly in the straw treated soils. The concentration of some important plant nutrients, including K, Ca, Mg, Na Fe and Mn increased in the soil solution significantly (at 1% level).

Interestingly, each level of straw application resulted in a rapid release of water soluble K, after which the concentration remained continuously higher than the control. Although the Fe concentration reached a temporary peak (240 ppm) 25 days after submergence, this high value rapidly declined. NH_4^+ -N in the soil solution was increased gradually to reach a maximum by the end of the first month. The P level in the soil solutions remained constantly very low in all treatments. In the straw treatment, besides water soluble K, there was also a marked increase in exchangeable K.

The study suggests that the nutrient status, particularly K of the rice growing sandy soils, could be improved by incorporating organic manures without enhancing strong reduction.