

EFFECT OF NEEM LEAF ON NITRIFICATION AND SELECTED PROPERTIES OF SOIL AMENDED WITH DIFFERENT SOURCES OF NITROGEN

Sivasakthy, K and Gnanavelrajah, N

Department of Agricultural Chemistry, Faculty of Agriculture, University of Jaffna.

ABSTRACT

A laboratory incubation study was carried out in Calcic Red Yellow Latosols fertilized with urea, compost and poultry manure to find out the effect of different N sources with locally available potential nitrification inhibitor on nitrification, microbial biomass and other properties of soil. N sources were applied at the rate of 200mg N/Kg soil. Treatments were T₁ (urea), T₂ (compost), T₃ (poultry manure), T₄ (urea + *neem* leaf powder), T₅ (compost + *neem* leaf powder) and T₆ (poultry manure + *neem* leaf powder). Complete randomized design was used with three replicates. Results indicated that addition of *neem* leaf powder significantly reduced NO₃⁻ content with all three nitrogen sources. Percentage reductions of nitrification by *neem* leaf powder with urea, compost and poultry manure were 53.85, 62.5 and 57.14 respectively. Lowest (28 mg/Kg soil) NO₃⁻ N content was measured in T₅ (compost + *neem* leaf powder) and T₆ (poultry manure + *neem* leaf powder) and highest (121 mg/Kg soil) in T₁ (urea). Cation exchange capacity of soil significantly increased in organically treated soils compared to inorganically treated soils. Highest (2510µg/g) microbial biomass carbon was measured in T₃ (poultry manure) and lowest (930µg/g) in T₁ (urea) on dry weight basis. Results therefore indicate that, organic sources improve soil fertility parameters and reduce NO₃⁻ pollution risk compared to inorganic fertilizer. Moreover, *neem* leaf powder has potential to reduce nitrification with both organic and inorganic sources.