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Impact of locally available organic amendments with leaching on pH in a saline soil

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A leaching column study was conducted at the Eastern University, Sri Lanka to study the impact of locally available organic amendments with leaching on pH in a saline soil. Farmyard manure (FYM), Gliricidia (G), partially burnt paddy husk (PBPH) and tank silt (TS) were used as soil amendments with leaching. All amendments were applied alone; FYM (T1), PBPH (T2), G (T3) and TS (T4) and as a combination farmyard manure with other amendments; FYM+PBPH (T1+ ½T2), FYM+G (T1+ ½T3), and FYM+TS (T1+ ½T4) at the rate of recommendation (T1-22, T2-0.625, T3-3.5, T4-100 Tons/ha). These eight treatments including the control (simple leaching without amendments) were replicated three times in a complete randomized design. The amendments were added to sandy loam saline soil from paddy land in Vaharai D.S. division, Batticaloa having an electrical conductivity (EC) and soil pH 13.1dSm−1 and 7.8 respectively. Saline soils mixed with treatments were filled into each leaching column (5.4 cm diameter and 30cm height), and incubated at room temperature for three weeks. After incubation, columns were filled with distilled water up to their saturation point. Then once in two weeks 150 ml of distilled water was added to each leaching column and the leachate was collected. Altogether four leaching cycles were completed during the study period. pH was measured in each leachate and in soil after the completion of leaching cycles. There was an increase in pH from 1st to 4th stage of leaching. At the final stage of leaching, the pH of leachate was significantly higher in control than other treatments. This shows most of the base salts in organically amended soil were washed at the time of the 3rd leaching while salts remains in control. Significantly least amount of pH was observed in the soil amended with FYM. In the soil analysis, significantly highest pH was recorded in control and significantly least pH was recorded in the tank silt.

Key words: pH, Organic Amendments, Saline soil

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