

SOIL FERTILITY ALTERATIONS DUE TO CONCENTRATED OF BIODIGESTED VINASSE OR RAW VINASSE APPLICATIONS

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ABSTRACT

The raw vinasse originated from alcohol production in sugar cane mills can be used as K fertilizer, but due to the elevated proportion of water the transportation costs makes unfeasible its use on far away fields. An alternative is the bio-digestion to methane and energy production to enable the concentration and transport. However, the resulting concentrate should be better studied before its agricultural use. Then, it was carried out an assay involving two types of soils (Alfissol and Dystrophic Hapludox) combined with six treatments: Control (no treatment); Raw vinasse (200 kg/ha K₂O); Raw vinasse + N (200 kg/ha N); Concentrate of bio-digested vinasse (200 kg/ha K₂O); Concentrate of bio-digested vinasse + N; Mineral fertilizer (N+K). Soil fertility was evaluated after 0, 15, 30 and 60 days after soils incubation, with four replications. It was concluded that vinasses tended to increase soil pH, with a greater effect of concentrate of bio-digested vinasse. Soil pH tended to increase up to 30 days after incubation, returning to baseline upon reaching about 60 days. The concentrate of bio-digested vinasse tended to induce slight lower values for soil Ca, Mg, K and CEC compared to raw vinasse, when was applied without nitrogen, however, accompanied by N fertilization, both vinasse types do not differ. Alfissol was more sensitive than hapludox on fertility alterations due to vinasses or mineral fertilizers.

Key words: Vinasse, biodigestion, concentration, fertilizers, soil fertility.

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