

**A Preliminary Study: Effects of Sugarcane-byproduct, Vinasse on Chemical
Properties of Soil and Initial Growth of Sugarcane**

Variety SL 83 06 and SL 96 128

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ABSTRACT

Vinasse is an aqueous effluent of the distillation unit in the sugar-alcohol industry and a problem to the sector due to its potential effects as an environmental pollutant. However, proper usage of vinasse contributes to improving soil quality and agricultural productivity. The objectives of this study were to evaluate the effects of sugarcane vinasse on soil chemical properties and initial growth attributes of the sugarcane plant. The research consisted of a laboratory and a pot experiment. In the laboratory experiment, concentrated vinasse (volume 1:10) was applied to soil in one level (40 m³/ha) and non-concentrated vinasse was applied to soil in four levels (40 m³/ha, 60 m³/ha, 80 m³/ha, 120 m³/ha) to evaluate soil chemical properties (pH, electrical conductivity, organic matter, nitrogen, phosphorus, and potassium). Data were collected up to for 98 days in the laboratory experiment. Similar treatments were applied for soil pot culture grown variety SL 83 06 and SL 96 128 as above ratios of concentrated and non-concentrated vinasse under net house condition. The results of the laboratory experiment indicated that the concentrated vinasse treated soil samples showed considerably higher values for all tested chemical properties except soil pH. Both varieties were performed well in 40 m³/ha non-concentrated vinasse level. SL 83 06 showed improvement in 80% shoot dry weight, 90 % root length, 58 % shoot dry weight and 74 % root dry weight in 40m³/ha non-concentrated vinasse level. Findings indicated that the stimulatory effect of a low rate of non-concentrated vinasse that 40 m³/ha for growth performance of SL 96 128.

Keywords: Concentrated and non-concentrated vinasse, soil chemical properties, Sugarcane