IMPACT OF DIFFERENT SOIL TYPES ON CHEMICAL PARAMETERS OF SUGRCANE GROWN IN HINGURANA PLANTATION

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ABSTRCT

A sugar is a food additive that provides a sweet taste and ethanol fuel is ethyl alcohol, the same type of alcohol found in alcoholic beverages, used as fuel. It is most often used as energy resource for generating electricity. There are differences in nutrient contents in the different soil types and those nutrients are affects to the growth of crop finally plant' productivity. Other than the nutrients, properties of the soil also influence to the growth of the plant. Soil physical, chemical and biological properties are the key factors affecting growth of sugarcane and its management. This study was conducted to study impact of soil type's properties of Reddish Brown Earth, Non Calcic Brown and Alluvial soil types in Hingurana on chemical parameters of Sugarcane at maturity stages at Agronomy farm, Gal-oya sugar plantation in Ampara district during January to May, 2019. Three different soil types as mediums for sugarcane cultivation were practiced in randomized complete block design with three replications and nine plots were labelled. To find out the most suitable soil type for "SL 96-128" variety of sugarcane was selected and grown. Period from 8th month to 12th month the chemical parameters such as brix value, POL value, pH value, purity and recovery of cane sugar of sugarcane juice were observed and recorded and soil properties such as bulk density, particle density, porosity, soil pH, organic matter content, and microbial activity were analyzed. All the experimental data were analyzed statistically with Duncan Multiple Rang Test (DMRT) at 5% significant level by using SAS 9.1 application statistical package. Analyzed chemical parameters and soil physical and chemical properties were compared among those three different soil types.

Alluvial soil type had improved in chemical parameters of sugarcane 'SL 96-128" variety at maturity stages of plant and physical and chemical properties of soil compared to other

two soil types. Alluvial soil type was showed the low level of bulk density (1.2433g/cm3) and particle density (2.4600g/cm3) and high level of porosity (52.43%), organic matter content (1.6366%) and microbial activity (43.76mgco2/1g sol). Moreover, alluvial soil type was found to have better improvement than non-calcic brown soil type and reddish brown earth soil type in above chemical parameters, physical and chemical properties of soil. This study also showed that the alluvial soil type improves the soil properties with minimum negative impact on the environment.

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