Effects of soil physical properties on erodibility and infiltration parameters of selected areas in Gidan kwano

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Abstract

This study looked at the physical properties of soil of selected areas of Gidan Kwano campus of Federal University of Technology Minna, Nigeria and their effects on erodibility and infiltration parameters. Infiltration rate of the selected areas were conducted using a double ring infiltrometer and soil samples collected at different depths of 0 – 30 and 30 – 60 cm respectively. Collected samples were analyzed to determine physical properties such as moisture content, particles size, bulk density, porosity and organic matter. Textural classification was carried out to determine the percentage dominance of the various soil types present in the selected areas. Plot A has a steady infiltration rate after 1 hour at 0 cm/hr. While plot B had a steady infiltration rate after 30 minutes at 1 cm/hr. The soil moisture count for plot A ranged between 9.54% to 14.56% while that of plot B range between 10.64% to 11.26%. The particle sizes analysis indicated that the soil type in plot A is mainly medium loam and predominantly sand clay loam in plot B. It is therefore concluded that, the study area is susceptible to erosion because of poor infiltration rate.

Keywords: Erodibility, Erosion, Infiltration, Soil, Undisturbed, Water

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