

## USE OF GEOSPATIAL TECHNOLOGY IN EVALUATING SOIL MICROBIAL POPULATION UNDER DIFFERENT LAND USE TYPES IN AKURE, NIGERIA

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### ARTICLE INFO

**Article Type:** Research

**Received:** 17, May. 2019.

**Accepted:** 05, August. 2019.

**Published:** 05, August. 2019.

### Keywords:

*Soil, Ecosystem, Geospatial and Land use types.*

### ABSTRACT

Microbial biomass of soil is recognized as a sensitive indicator of soil quality and fundamental for sustainable environmental management. This study aimed to use geospatial technology in evaluating soil microbial population under different land use in Akure, Nigeria. Global position system was used to identify the GeoEye-1 satellite image of the land use. The land uses were oil palm, teak plantation, unclear forest, cassava, and sugar plantations. Soil samples were collected at a depth of 0-15cm, 15-30cm and 30-75cm on each land uses and was taken to the laboratory for microbial analysis. Map showing the spatial representation of the microbial population across the land uses were produced using geographic information system (GIS) spatial method of interpolation operations. The mean values of the colony-forming units of microorganism was input in Microsoft Excel and saved in coma delimited file format, which was added as a layer in ArcMap in the Projected Coordinate Systems WGS 1984 UTM zone 31N. Spatial distribution was displayed using the Spatial Interpolation and Kriging Tools. This study reveals that, geospatial technologies provide accurate information for soil microbial population in different land uses and spatial representation map of microbial community indicated a higher microbial population in cassava land than other property uses.

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