

## COMMUNITY LEVEL PHYSIOLOGICAL PROFILES (CLPP) IN THE RHIZOSPHERE OF CASSAVA AND FORESTED AGROECOSYSTEMS

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### ABSTRACT

The functional diversity and similarity in soil microbial community in a cultivated and forested tropical agroecosystem was assessed using the Biolog ecoplate. The CLPP of the soil extract was able to detect the effect of increasing N-level of the cultivated soil with fertilizer NPK on the pattern of substrate utilization in the Biolog ecoplate. Similarity in microbial nutrition pattern as indicated by colour change in the Biolog ecoplate wells inoculated with soil samples from NPK fertilized plot was compared with that from the forest plot. Results from a multivariate analysis of variance (MANOVA) of the normalized average-well colour density (AWCD) values of ecoplate readings indicated a close relationship between CLPP in the NPK and forested plots. The functional diversity ( $H'$ ) of the NPK fertilized and unfertilized plots were higher when compared to the forest plot. The tetrazolium reduction, as a result of microbial activity, increased with incubation time. Sixteen (16) out of the 31 substrate wells were significantly utilized with increased incubation of extracts from both soils. The utilization of substrates (N-acetyl-D-glucosamine, L-asparagine, 2-hydroxybenzoate,  $\gamma$ -hydroxybutyric acid, D-malic acid and L-serine) were significantly enhanced by NPK fertilizer in the cassava plot.

**Keywords:** Substrate utilization, Biolog ecoplates, Functional diversity Tetrazolium reduction, Microbial activity, CLPP.