EFFECTS OF *ALBIZIA ZYGIA* CHARCOAL ON THE GROWTH AND PERFORMANCE OF MAIZE (*ZEA MAYS* L.)

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ABSTRACT

Biochar is a charcoal material produced by the thermochemical pyrolysis of biomass materials. It can be used in soil amendment, for improving soil properties/quality and enhancing significant increases in crop yields, thus promoting plant productivity. In this study the application of wood biochar (charcoal) from *Albizia zygia* to soil medium was investigated on the growth and performance of *Zea mays* L. Treatments ranging from 5%, 10%, 15% and 20% concentrations of wood charcoal from *A. zygia* tree were mixed with sandy loam soil samples to serve as the planting medium. The result indicated that 5% treatment gave the highest value in terms of plant height (127cm), number of leaves (10), leaf area (771cm^2), stem girth (1.8cm) and chlorophyll content (0.42) compared to other treatments and the control. However, the 20% treatment gave the highest value of root length (60.2cm) when compared to other treatments and the control. This study revealed that for optimum growth and performance of *Z. mays*, 5% concentration of charcoal is the best treatment however, increasing the charcoal concentration decreases the growth and performance. The enhancement of growth indicators monitored in *Z. mays* with the application of 5% wood biochar of *A. zygia* in the soil may be attributed to increased pH and ions in the soil, increased nutrient uptake, better water retention and increased microbial activity. Thus the result demonstrated the potential of wood biochar of *A. zygia* to improving plant growth of *Z. mays*, this finding has positive implication to food security and sustainability in Sub-Saharan Africa in general and Nigeria in particular

Keywords: Charcoal, *Zea mays*, *Albizia zygia*, Growth.