

Growth Studies and Leaf Mineral Composition of *Amaranthus hybridus* L. in Soil Medium Supplemented with Palm Bunch Ash Extract from *Elaeis Guineensis* jacq. in Abak Agricultural Zone of Akwa Ibom State, Nigeria

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Abstract : An aqueous extract of palm bunch ash from *Elaeis guineensis* Jacq., equilibrated with water was used to assess the growth and minerals composition of *Amaranthus hybridus* L. in agricultural soil of Abak, Akwa Ibom State, Nigeria. Various concentrations, 0 (control), 10, 20, 30, 40, and 50% of palm bunch extract per 4kg of sandy-loam soil were used for the study. Chemical characteristics of the extract, Growth parameters (Plant height, root length, fresh weight, dry weight and moisture content), leaf minerals composition (Nitrogen, phosphorus, potassium, calcium and magnesium) of the crop and soil chemical composition before and after harvest (pH, organic matter, nitrogen, phosphorus, potassium, calcium and magnesium) were examined. The results showed that palm bunch ash extract significantly ($P < 0.05$) increased the soil pH at all levels of treatments compared to the control. Similarly, the soil and leaf minerals component (N, P, K, Ca, and Mg) of the crop increased with increase in the concentration of palm bunch extract, except at 40 and 50% for leaf minerals composition, Soil organic matter, nitrogen and phosphorus (before and after harvest). In addition, The plant height, Root length, fresh weight, dry weight and moisture content of the crop increased significantly ($P < 0.05$) with increase in the concentration of the extract, Except at 30, 40 and 50% where these growth parameters decreased in relation to the control treatment. Therefore, this study suggests that palm bunch ash extract could be utilized at lower concentration as a nutrient supplement for both *Amaranthus hybridus* L. and soil medium, most especially in the tropical soils of the Niger Delta region of Nigeria.

Keywords : *Amaranthus hybridus* L., growth, leaf minerals composition, palm bunch ash extract

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