GROWTH AND YIELD CHARACTERISTICS OF COWPEA (*VIGNA UNGUICULATA* (L.) WALP) AS INFLUENCED BY AQUEOUS EXTRACT *OF* MORINGA (*MORINGA OLEIFERA* LAM.) AND NITROGEN RATES II

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ABSTRACT

Increase in Cowpea (Vigna unguiculata (L.) Walp) production and yield becomes vital in Nigeria, because it is the major cash crop and a source of plant protein to many who cannot afford animal or fish protein. Implicit to this dictum, field experiments were conducted in 2009 and 2010 rainfed cropping seasons at the Teaching and Research Farm, Faculty of Agriculture, Bayero University, Kano, Nigeria to study the performance of cowpea with aqueous extract of moringa (Moringa oleifera Lam.) and Nitrogen rates. Moringa shoot were crushed with water and filtered out. Liquid extract were then diluted with water in the following concentrations: 0 %, 3 %, 4 % and 5 %. These treatments with 3 N rates (0, 10 and 20 kg N ha^{-1}) in a factorial combination were tested on cowpea in an experiment laid out in a Randomized Complete Block Design with three replications. Foliar spraying of aqueous extract of moringa (AEM) was done fortnightly from 2 to 8 weeks after sowing. Data were taken on leaf area per plant (LA), crop growth rate (CGR), number of pods per plant (NPP) and grain yield (GY) per hectare. Data generated were subjected to analysis of variance. Results showed highest LA (4547 cm^2) and CGR (21.58 gwk^{-1}) in the combined seasons with 20 kg Nha^{-1}, and NPP (183.47) with 10 kg N ha^{-1}. Similarly, highest LA (6058 cm^2) and CGR 21.96 (gwk^{-1}) were obtained with 3 % AEM, and NPP (188) with 5 % AEM. There was no significant effect of N on grain yield in the seasons. Significant effect of AEM was recorded on grain yield; 5% had highest yield (769.68 kg ha^{-1}) in the combined seasons. Based on the results, it was concluded that AEM can compliment N in increasing cowpea yield. Thus, 20 kg N $ha^{-1}$with 5 % AEM should be adopted.

Keywords: Aqueous extract of moringa, cowpea yield improvement, Nitrogen.