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**Performance of *Metarhizium anisopliae* (Metsch.) Sorok and *Beauveria bassiana* (Bals.) Vuill. Isolates against Cowpea Aphid (*Aphis craccivora* Koch) in Cowpea**

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**Abstract**

Cowpea *Vigna unguiculata* L. Walp is an important indigenous leafy vegetable grown in the tropics mainly as an inter crop with cereals. It is drought tolerant and improves soil fertility. Cowpea production in the tropics is below world production records mainly due to damage by arthropod pests and among them cowpea aphid, *Aphis craccivora* Koch, is a major pest causing direct damage by removing plant sap and indirectly by transmitting viral diseases. Chemical pesticides used in management of cowpea aphid have undesirable effects including toxic residues on food, indiscriminate killing of beneficial arthropods, are expensive and lead to development of resistance. Entomopathogenic (EPF) based biopesticides offer a sustainable alternative to chemical pesticides in the management of cowpea aphid as they are environment and user friendly and are compatible with other IPM strategies like biological control. Two isolates of *Metarhizium anisopliae* (ICIPE 62 and ICIPE 41) and one *Beauveria bassiana* (ICIPE 644) isolate which caused 90, 80 and 75 % mortality respectively to cowpea aphid under laboratory conditions were evaluated under field conditions for two seasons for their performance against cowpea aphid. Conidia in oil formulation was applied at the rate of  $1 \times 10^{12}$  conidia ha<sup>-1</sup>. In the first season, characterised by high rainfall and late and low aphid infestation, the isolates did not result in significant reduction in aphid population density and leaf yield gain compared to control. However, in the second season with reduced rainfall and early and high aphid infestation all the isolates recorded significantly reduced aphid densities compared to control. Furthermore, ICIPE 62 recorded lowest aphid density compared to ICIPE 41 and ICIPE 644. There was however no significant difference in leaf yield between the biopesticides and control even though biopesticides treated plots produced better quality leaves for consumption. This study confirms the efficacy of the three isolates against *A. craccivora* and the potential of ICIPE 62 as promising biopesticide. The results also show that efficacy of fungal based biopesticides is dependent on prevailing environmental conditions and therefore the need to improve their performance under different environmental conditions.

**Keywords:** Biopesticide, entomopathogenic fungi, mortality