
Evaluation of Biopesticides for Traditional African Vegetables in Kenya

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Introduction

Traditional African Vegetables (TAV) production is limited by insect pests that cause yield losses and reduce quality of produce. The indiscriminate use of synthetic pesticides to control these pests has been associated with increased pest resistance, and human and environmental health concerns. Biopesticides offer a natural, safe and effective alternative in controlling insect pests. Therefore, this study sought to evaluate the efficacy of commercially available biopesticides for controlling insect pests in kale, African nightshade and amaranth.

Methodology

Five biopesticide treatments (*Bacillus thuringiensis*, *Metarhizium anisopliae*, *Beauveria bassiana*, azadirachtin 0.03%), one synthetic pesticide treatment (Lambda cyhalothrin) and Control (no treatment) were applied to each crop. Each treatment had three replicates in a randomized complete block design. Treatment plots measured 2 m x 2 m with 1 m separating them. The pesticides were applied two weeks after transplanting and application continued at weekly intervals for 8 weeks. Weekly data on aphids and whiteflies incidence and leaf area damage was collected over the same period and analyzed using analysis of variance and post hoc Tukey test.

Results & Discussion

All pesticide treatments showed no significant difference in aphid population in kale and amaranth, however the aphid population in African nightshade, was significantly lower in plots treated with *Beauveria Bassiana* and Lambda cyhalothrin. White fly population in kales showed no significant difference in all pesticide treated plots. Leaf area damage in kale and African nightshade was similar in all treatments. In Amaranth, plots treated with *Bacillus Thuringiesis*, *Metarhizium anisopliae* and azadirachtin showed significantly lower damage than synthetic pesticide.

Conclusion

The findings indicate that biopesticide are effective enough in controlling insect pests in TAVs.

Keywords

Biopesticides, synthetic pesticide, insect pests, Traditional African Vegetables