EVALUATION OF BOKASHI ORGANIC FERTILIZER ON GROWTH AND YIELD OF SALAD CUCUMBER UNDER PROTECTED CONDITION

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ABSTRACT

Salad cucumber (*Cucumis sativus* L.) is an important high-value crop in Sri Lanka, widely cultivated under both open-field and protected condition. Organic fertilizers, such as bokashi, offer a sustainable alternative by enhancing soil health and improving nutrient availability. Despite its growing popularity, limited research has been conducted on the impact of bokashi on salad cucumber production in Sri Lanka. This study aimed to evaluate the effects of bokashi organic fertilizer on the growth and yield of salad cucumber under protected condition at the Sustainable Agriculture Research and Development Center, Makandura, Gonawila, Sri Lanka. The experiment was conducted from November 18, 2024, to February 28, 2025, using a Completely Randomized Design (CRD) with different amount of fertilizer for five treatments and without fertilizer for one treatment (control), totally six treatments and four replicates. Each replicates consist with two experimental units. Growth parameters, including plant height, number of leaves, canopy width, leaf area and chlorophyll content, were recorded weekly, while yield parameters such as fruit number, weight, and total yield per plant were assessed. Data analysis was performed using Statistical Analysis System (SAS) software 9.4 version, with Duncan's Multiple Range Test (DMRT) used for mean separation. The results demonstrated that the Compost + Bokashi (COM+BOK) treatment (T5) significantly enhanced plant growth and yield compared to the all treatments, while producing a similar number of fruits as the Albert treatment (T6). Compost + Bokashi (COM+BOK) treatment enhanced chlorophyll content, canopy expansion, and fruit yield, indicating improved nutrient availability and root development. These results highlight Compost + Bokashi (T5) as a sustainable alternative that boosts productivity and soil health. This study provides valuable insights for farmers, researchers, and policymakers, emphasizing the need for sustainable fertilization strategies. Further research is recommended to assess long-term soil health benefits, economic feasibility, and scalability for commercial salad cucumber production in Sri Lanka.

Keywords: Bokashi, Economic, Growth, Organic fertilizer, Salad cucumber, Soil health, Sustainable agriculture, Yield

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