FORMULATION AND EVALUATION OF A LIQUID ORGANIC FERTILIZER

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Liquid organic fertilizers have been introduced to overcome the negative impacts of chemical fertilizers. An experiment was conducted to formulate a novel liquid organic fertilizer with commonly available materials including wild sunflower (*Tithonia diversifolia*), Gliricidia (*Gliricidia sepium*), water hyacinth (*Eichhornia crassipes*), and fresh goat manure. The study evaluated the efficiency of novel fertilizer against two different commercial liquid organic fertilizers on the vegetative and reproductive phases of cucumber (*Cucumis sativus* L.) grown on an open field in the Anuradhapura district, Sri Lanka. All treatments including the control were foliar applications on cucumber in a RCBD. Vegetative growth and yield parameters were measured and data were analysed using one-way ANOVA. The novel liquid organic fertilizer contained the highest N and K levels compared to other fertilizer types. The results revealed that there was a significant ($p<0.01$) difference in the number of lateral branches of cucumber among the fertilizers and the highest number of lateral branches ($\mu=4.0$) were produced by the wines treated with novel fertilizer. Further, there were no significant differences in the number of leaves, internodal length, and stem diameter of cucumber wines among the three fertilizer types during the vegetative stage. The highest number of flowers ($\mu=25.0$) was observed ($p<0.01$) in plants treated with the novel fertilizer. Further, the number of fruits ($\mu=14.0$) and fruit length ($\mu=22.3$ cm) were significantly ($p<0.01$) higher with the novel fertilizer. In addition, the fresh weight and girth of cucumber were not significantly influenced by liquid fertilizer types. Hence, the study concludes that the novel organic fertilizer performs more effectively in the reproductive phase than the vegetative phase of cucumber. However, further research is needed to compare the reproductive performance of cucumber with novel fertilizer against other tested fertilizers.

Keywords: Cucumber, Evaluation, Formulation, Liquid organic fertilizer