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Efficacy of liquid organic fertilizers on growth and yield of *Centella asiatica* (L.) (Gotukola)

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Liquid organic fertilizers are considered as important alternatives to chemical fertilizers which cause negative implications on human health and the environment. The objective of this study was to formulate environmental friendly, cost effective organic liquid fertilizers having a potential to meet the nutrient requirements of *Centella asiatica* L., a leafy vegetable of medicinal value.

Twelve water-based extracts were prepared after a period of 8 weeks of decomposition using different combinations of the following: three extracts using plant leaves of *Gliricidia sepium*, *Tithonia diversifolia* and *Erythrina indica,* and nine extracts by mixing the above plant leaves with poultry manure, fish waste and coconut husk ash in a 3:1 weight basis respectively. After an initial nutrient analysis, four nutrient-rich extracts were selected to be used for pot experiments of *C. asiatica*. The pot experiment was conducted in a Randomized Complete Block Design (RCBD) maintaining six replicates. Two week old uniform plantlets of *C. asiatica* were collected from a plant nursery in Veyangoda and each of them was planted in a single pot. The filtered extract was half diluted with well water and 10 mL of each was sprayed on the foliage twice a week. The control plants were sprayed with well water in the same manner. The growth parameters observed after 8 weeks of the establishment of the experiment were the number of leaves per plant, leaf area per plant and plant fresh weight and dry weight. The growth performance was compared with plants treated with a commercial liquid organic fertilizer and with plants supplied with recommended NPK levels into the soil. Data collected were analyzed using one way analysis of variance (One way ANOVA).

The four combinations of nutrient rich fertilizers identified were *Tithonia* + fish waste, *Tithonia* + coconut husk ash, *Gliricidia* + poultry manure and *Gliricidia* + coconut husk ash. The results revealed that the application of the liquid fertilizer prepared with *Gliricidia* and poultry manure increased the growth and yield of *C. asiatica* significantly ($p < 0.05$), while the other three combinations were also found to be superior to the commercial liquid fertilizer used. Hence the formulated liquid organic fertilizers can effectively be used to increase plant growth and yield of *C. asiatica*.

Keywords: Animal waste, *Centella asiatica*, coconut husk ash, fish waste, liquid organic fertilizers

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