



Formulation of fermented banana peel fertilizer with blue butterfly pea leaves (*Clitoria ternatea*)

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Abstract: Organic liquid fertilizer was derived from naturally existing products such as plants and animal manure. Organic liquid fertilizer is a sustainable alternative solution to reduce the use of synthetic fertilizers in agriculture. Generally Food waste such as banana peel is used as raw materials for the liquid organic fertilizer production. It contains a high amount of potassium, phosphorus and other micronutrients that are required for plant growth. But the banana peel contained a very low amount of nitrogen. The butterfly pea plant leaves contained a high amount (4.8%) of nitrogen. Fermentation increases the nutrient content of the product compared to raw material. This research was conducted to formulate the organic liquid fertilizer by using fermented banana peel solution incorporated with butterfly pea leaves. The organic liquid fertilizer was prepared by adding dried banana peel (Ash banana, Anamalu banana, Sweet banana, Red banana and Sour banana) powder, yeast, curd and non-chlorinated water. The solution was prepared by mixing all the ingredients and kept in a dark place for seven days under aerobic condition for fermentation. Then after seven days, the butterfly pea leaves powder was added into fermented solution and mixed well. The chemical analysis was done by using standard methods. The pH and EC values of the organic liquid fertilizer were matched with the Sri Lankan standards of organic liquid fertilizer. The result showed that the Nitrogen, Phosphorous, Potassium composition may vary according to the banana variety. And the fermentation increased the Nitrogen, Phosphorous, Potassium level compared to raw material. According to the results, Anamalu banana, Ash banana and Sweet banana provide high amounts of Nitrogen, Phosphorous, and Potassium level compared to other two varieties of banana. Therefore this Banana peel liquid fertilizer can be used in organic agriculture as an alternative to the compost with less production time.

Keywords: Alternative solution, Fermented solution, Organic liquid organic fertilizer