

Quality Test of Liquid Organic Fertilizer Mixture of Nata de coco Liquid Waste with Chicken Egg Shells and its Application on Mustard Plants (Brassica juncea L.)

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ABSTRACT

Nata de coco liquid waste is acidic so that it can be used as liquid organic fertilizer (POC) which is able to dissolve eggshell P and Ca. The objectives of this study were (1) to determine the quality of liquid POC from Nata de coco waste added with eggshells, (2) to determine the ability of Nata de coco liquid POC in dissolving eggshell P and Ca, and (3) to determine the effect of Nata de coco POC application on mustard growth. Three types of POC were made, namely PA (without the addition of eggshells), PB (added 5% eggshells), and PC (added 10% eggshells). In PB and PC there is still eggshell sediment. Therefore, the POC was further divided into five types, namely P1, P2, P3, P4, and P5. P1 is the PA type POC, P2 and P4 are POCs that are the liquid part of PB and PC, respectively, while P3 and P5 are all PB and PC types of POC, respectively. POC parameters observed were organic C, pH, total N, P₂O₅, K₂O, available Ca, available Mg, reducing sugar, acid content, total microbial count, and lactic acid bacteria count. Application of the five types of POC on mustard plants using the non-factorial Completely Randomized Design (RAL) method. Parameter analysis was tested by analysis of variance/ANOVA and if there was a significant difference, it was tested by DMRT test at 5%. The growth parameters observed were the number of leaves, plant height, wet weight and dry weight of plants. The results showed that the C-Organic value of POC has not met the minimum technical requirements of decree of the minister of agriculture no 261 of 2019, while the levels of N, P, and K have met. POC is able to dissolve eggshell Ca and P. POC type P5 provides the best agronomic growth in mustard plants.

Keywords: Nata de coco waste, eggshell, POC, Ca, N, P