INFLUENCE OF VERMI-COMPOSTING ON SOLUBILITY OF EPPAWELA ROCK PHOSPHATE

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The application of Eppawela Rock Phosphate could be an economic alternative to the use of imported phosphorus fertilizers for certain crops and soils. However, low solubility limits the direct application for annual crops. Partial acidulation is economical and leads to a product containing reasonably high available P_2O_5 (16%-20%) and the availability and cost of raw materials and acids determines the feasibility. Vermicomposting is a process of composting with earthworms when humic acids and other organic acids will increase the solubility of ERP. This study was conducted to investigate the influence of vermicomposting on solubility of ERP.

Fresh Gliricidia leaves, grass and fresh cow dung were mixed at 1:1:2 ratios as the basic composting mixture (T_1- control) and ERP was mixed with 200 g (T_2) and 400 g (T_3) to make phosphocompost. Forty (40) earthworms each were added to treatments in plastic containers. Treatments were replicated four times. The nutrient availability was measured with time and compared with the control.

Addition of ERP into basic mixture reduced the earthworm multiplication rate. In each treatment equal amount of nitrogen was observed, which indicates the minimal effect of rock phosphate, on nitrogen availability. The availability of phosphorus and magnesium was significantly increased in T_2 and T_3 and the percentage of available phosphorus was significantly higher in T_3 (1.02%) than T_2 (0.92%). Potassium content was kept unchanged in all treatments. Therefore, vermicomposting increase the solubility of ERP and the available P_2O_5 in the end product.

Key words: Eppawela Rock Phosphate, Solubility, Vermicomposting