

PHOSPHORUS AVAILABILITY OF PHOSPHOCOMPOST PREPARED USING EPPAWALA ROCK PHOSPHATE

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Phosphorus (P) is one of the most limiting nutrient for crop production. Use of Eppawala Rock Phosphate (ERP) as a phosphorus fertilizer is limited due to its lower solubility of the nutrient. The main objective of this study was to determine the phosphorous availability of phosphocompost prepared using ERP. Composts were prepared using the same feedstock with and without ERP and the process of composting was monitored. Monitoring process revealed that no difference existed between Compost and Phosphocompost heaps. Compost and Phosphocompost prepared were analyzed for their physiochemical properties and nutrient contents. A planthouse experiment was conducted using Complete Randomized Design (CRD) to evaluate the performance of different composts using capsicum as test crop. Soil used for the experiment was deficient in P and the treatments used were zero P and P as 0.343 g/pot. Phosphorus was supplied in the form of TSP, ERP, TSP+ERP, Phosphocompost, Compost+TSP, Compost+ERP. Treatment number 8 was Compost alone where P was not balanced. Plant growth performance and effect on soil available P was determined at three and six weeks after planting. ERP, phosphocompost and compost were analyzed for Citrate Soluble Phosphorus and the contents were 2.35%, 0.87% and 0.11% where as the total P contents were 14.85%, 3.78% and 0.38%. Compost+TSP, TSP and TSP+ERP showed significantly higher plant height, dry weight and soil available P content, compared to rest of the treatments. Phosphocompost treatment showed comparable plant height, dry weight and soil available P content with ERP and Compost+ERP treatments. Phosphocompost treatment showed improved P uptake compared to the ERP, Compost +ERP and Compost treatments. The study revealed that preparation of phosphocompost with ERP would not markedly improve the availability of P in ERP. However, compared with application of ERP alone and application of Compost+ERP, application of Phosphocompost is much effective.

Key words: Composting, ERP, Phosphocompost, Phosphorus, Phosphorus availability