

IMPROVING THE SOLUBILITY OF *EPPAWALA* ROCK PHOSPHATE BY DIFFERENT AMENDMENTS AS ALTERNATIVES FOR IMPROVING PHOSPHORUS UPTAKE IN MAIZE CULTIVATION

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Eppawala Rock Phosphate (ERP) may be an alternative to imported Triple Super Phosphate (TSP) for certain annual crops like maize, despite its reduced solubility, which limits direct application for annual crops. The potential of using biochar and vermicompost blended with ERP as a substitute for TSP in maize cultivation was evaluated by conducting a field trial at the Grain Legumes and Oil Crops Research and Development Center, *Angunakolapelessa*. The field experiments were conducted with eight treatments: T₁: Control, T₂: Department of Agriculture (DOA) Recommended (Rec.) mineral only, T₃: DOA Recommendation (mineral + Organic 10 t ha⁻¹), T₄: DOA Rec. N, K + 75% TSP + 25% ERP, T₅: DOA Rec. N, K + 50% TSP + 50% ERP + vermicompost (2 t ha⁻¹), T₆: DOA Rec N, K + ERP matured with vermicompost (1:4 ratio), T₇: DOA Rec. N, K + 50% TSP + 50% ERP matured with vermicompost, T₈: DOA Rec. N, K + 50% TSP + 50% ERP with biochar-based pellet. Treatments of the field trial were arranged in a randomized complete block design with three replicates. The soil and plant growth parameters of different treatments were compared statistically, and the mean comparison was done using the LSD test. Results indicated significantly ($p \leq 0.05$) higher plant height (203 cm) and shoot dry matter weight (403 g) in T₄ compared to the rest. The available soil phosphorus contents of T₄ (13.6 mg g⁻¹ and T₇ (14.5 mg g⁻¹) were significantly higher ($p \leq 0.05$) compared to the T₂ (10.73 mg g⁻¹). In contrast, plant height, shoot dry weight, and available soil P content of T₆, where ERP was the sole P source, were similar with the same parameters of T₂. Therefore, T₆ is a better alternative to reduce the application of TSP for early growth in maize cultivation.

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