EFFECT OF EPPAWALA ROCK PHOSPHATE (ERP) AND TRIPLE SUPER PHOSPHATE (TSP) ON GROWTH OF COWPEA PLANT (*Vigna unguiculata L.*) IN SANDY REGOSOL SOIL

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ABSTRACT

Phosphorus deficiency is a major problem in tropical soil and it directly influence on productivity of crops. Sandy regosol is a major group of soil in Batticaloa District, Sri Lanka. Productivity of most legume crops limited in the sandy regosol due to the lack of the availability of phosphorus. Phosphorus deficiency can be managed by using a proper phosphorus source in sandy regosol. Eppawala Rock Phosphate is a cheap and available source of phosphorus in Sri Lanka and it has been confirmed as constrain of direct use to annual crops as a phosphate source and it was limited to perennial crops due to the low solubility.

A study was conducted from July to September 2017 to investigate the effect of various rates of Eppawala Rock Phosphate to give 18kg P_2O_5/ha, 36kg P_2O_5/ha and 54kg P_2O_5/ha solely (control) and in combination with dissolving agents compost, Sulphuric acid and Triple Super Phosphate (TSP). These 4 treatments replicated three times in a Completely Randomized Design (CRD) in a factorial manner. Soil phosphorus content, plant phosphorus content and growth parameters of cowpea were recorded. The data were statistically analyzed using SAS and difference between treatment means was compared using Duncan's Multiple Range Test (DMRT).

Results revealed that the application of ERP with dissolving agents increased soil phosphorus content from 90.12mg/kg to 465.998 mg/kg (at harvest). Among all applications 54kg P_2O_5/ha in the form of ERP with TSP proved to be the best to increase the growth components in sandy regosol soil.

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