

# ISOLATION AND IDENTIFICATION OF ROCK PHOSPHATE SOLUBILIZING BACTERIA FROM A PINE FOREST SOIL CULTURE

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**Abstract:** Phosphorus (P) is one of the essential plant nutrients which is required to be abundant for plant growth and production. Plant-available P depends highly on the soil pH level. Under alkaline conditions, it becomes unavailable and forms insoluble complexes. Phosphorus Solubilizing Microorganisms (PSM) can effectively mineralize Eppawala Rock Phosphate (ERP) and convert it into plant-available forms. This research focused on increasing availability of plant available P from the ERP mineral. Phosphorus Solubilizing Microorganisms was isolated from the biofertilizer developed from a pine forest soil culture and identified using Pikovskaya Agar under serial dilutions in the pour plate method. Isolated PSM taxonomy was determined using 16S rDNA sequencing. Quantification of P availability by solubilizing ERP minerals was determined using the phosphomolybdate method. From the P solubilizing bacteria identified in pine forest soil culture, *Bacillus* sp. and *Acetobacter* sp. showed the most significant ( $P < 0.05$ ) performance in solubilizing ERP. The enhancement of available P in soil by incorporating microorganisms has a direct impact on increasing crop establishment, plant growth, and yield production.

**Keywords:** 16S rDNA; Eppawala rock phosphate (ERP); Phosphorus (P); Phosphorus solubilizing microorganisms (PSM)