

## **Aluminum toxicity in acid sulfate soil alleviated with biogenic liming composites of blood cockle shell and palm kernel shell**

### **ABSTRACT**

Low crop yield from acid sulfate soil was caused by high concentrations of aluminum and iron in soil. Aluminum ion which cause root injury at root region inhibits the uptake of the nutrients by the root and lead to nutrient deficiency. Ground magnesium limestones can be applied to overcome this problem but incurred more production cost. Biogenic liming agent from blood cockle shell and/or palm kernel shell are more cost effective and provide the essential element i.e. calcium. This study evaluate phase-association of Al in acid sulfate soil remediated using biogenic composites liming material using selective sequential extraction analysis. Biogenic liming composites were characterized for pH, proximate analysis and elemental composition. High ratio of BCS in composite retained Al in the residual form about 91.33%. Amelioration of soil with 100% PKS did not give significant reduction of the exchangeable Al.

**Keyword:** Soil remediation; Phytotoxicity; Abiotic stress; Calcination; Alkalinity