

Potentiality of pressmud application in soil for Palm oil plantation productivity

ABSTRACT

The agricultural sector in Malaysia is predominantly comprised of the oil palm and sugar refinery industries. Approximately 50% of the materials generated during palm oil and sugar production would result in organic waste that contains a high content of lignin and cellulose. Waste generated from the sugarcane industry can be used as a resource of another, bringing economic and environmental benefits. This study aims to provide useful insights into using sugarcane waste to enhance the sustainability of the agriculture industry in Malaysia, specifically palm oil plantations. It can also enhance the green knowledge in soil technology for a sustainable agriculture industry in this country. Based on the physico-chemical characteristics examined in this study, pressmud evidently emerges as a promising material with significant potential to serve as an admixture medium in soil for palm oil plantations, leading to a reduction in the application of chemical fertilizer. This waste material displayed a coarse texture, compared to the less coarse texture of the laterite soil. Its texture and surface of the object exhibited irregularities and were covered with pores. Incorporating pressmud into the soil has improved its capability to adsorb nutrients by facilitating the cation exchange process. The efficacy of the laterite soil-press mud mixture as a soil amendment in palm oil plantations can be determined through its Cation Exchange Capacity (CEC), a key indicator of its ability to improve soil performance and enhance production.