

**Phytoremediation of palm oil mill effluent (POME) using
*Eichhornia crassipes***

ABSTRACT

The inefficiency and lengthy treatment process of conventional open ponding method has posed challenges to palm oil industry in treating highly polluting palm oil mill effluent (POME), thus there is a need to look for a more efficient and sustainable alternative solution. Phytoremediation has been recommended as a potential method for wastewater treatment due to its economical and environmental advantages. However, research on phytoremediation of POME using *Eichhornia crassipes* (*E. crassipes*) is still limited. This study aims to determine the feasibility of applying phytoremediation using *E. crassipes* for POME treatment by investigating the effects of pH, plant: POME ratio and retention time on the biochemical oxygen demand (BOD), chemical oxygen demand (COD) and total suspended solid (TSS) in POME. The highest BOD removal of 92.78% was achieved after 21 days retention time at pH 4 with plant: POME ratio of 1:20 kg/L. The highest COD removal of 25.24% was achieved after 14 days retention time at pH 6 with plant: POME ratio of 1:20 kg/L. Phytoremediation using *E. crassipes* was shown to be a promising eco-friendly technique for POME treatment, considering the shorter treatment time required and its effectiveness in reducing the BOD in POME to meet the discharge standard of 20 mg/L.

Keyword: Phytotechnology; Water hyacinth; Palm oil mill effluent (POME); Wastewater treatment.