Removal of trace oil from palm oil mill effluent using polypropylene nanofibers as adsorbent

ABSTRACT

This paper aimed to investigate the removal of trace amount of oil from palm oil mill effluent (POME) by using polypropylene nanofibers (PPNF) as solid adsorbent. The potential on removing trace oil was carried out using synthetic POME in batch adsorption experiment. The investigation on surface morphology of PPNF revealed the lower density of fibrous and porous structure between fibers. The adsorption data of PPNF for removing trace oil were depicted by fitting it using Langmuir and Freundlich isotherms. The adsorption isotherm plot revealed a linear behavior of oil onto PPNF at very low concentration. The Freundlich isotherm shows better fitting on the experimental data with R^2 of 0.8983 and SSE of 0.0249, which suggest heterogeneity of adsorption process on PPNF. This suggest potential employability of PPNF to be used in removing trace amount of oil.