

Title (16)	:	Nutrient Recovery from Anaerobic Palm Oil Mill Effluent Using Palm Kernel Shell Biochar and Deoiled Spent Bleaching Earth and Their Effect on Oil Palm Growth
Journal	:	Advancements in Materials Science and Technology Led by Women
Document Type	:	Book Chapter
Publisher	:	Springer
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Link to Full Text	:	https://link.springer.com/chapter/10.1007/978-3-031-21959-7_7
Link to Scopus Preview	:	https://www.scopus.com/inward/record.uri?eid=2-s2.0-85153067500&doi=10.1007%2f978-3-031-21959-7_7&partnerID=40&md5=3871be4fb8e6dc3c4aec9d938836cae2
Abstract	:	<p>Untreated palm oil mill effluent (POME) causes severe environmental pollution. Anaerobic pretreatment followed by nutrient recovery with subsequent use as fertiliser can avoid pollution and generate value-added products. We investigated the feasibility of recovering nutrients from anaerobically pretreated POME using palm kernel shell biochar (PKSBC) and deoiled spent bleaching earth (DSBE) as sorption agents. Nursery trials were conducted to study the effect of the nutrient-enriched PKSBC and DSBE on Haplic Acrisol soil fertility and oil palm seedling growth. About 14% of P, 43% of NH₃ and 42% of Fe content present in DSBE-pretreated POME were recovered by PKSBC, while DSBE was able to recover 47% of NH₃ and 27% of Fe from anaerobically pretreated POME. Both nutrient-enriched sorption agents enhanced soil properties, with DSBE-treated soil showing superior fertility and performance. The cation exchange capacity of Haplic Acrisol increased from 6.6 to 11.8 meq/100 g for DSBE-treated soil and to 8.7 meq/100 g for PKSBC treatment. The growth and health of oil palm seedlings, measured in terms of collar diameter and leaf colour index, was greatest for DSBE-treated soils, followed by PKSBC-treated soils and control. This study shows the reuse potential of palm oil industry by-products towards a circular palm oil economy.</p>