Title (3)	:	**Soil Nutrient and Management in Oil Palm Plantations and Agronomic Potential of Biochar**
Journal	:	Advanced Structured Materials
Document Type	:	Book Chapter
Publisher	:	Springer Nature
UniKL Author	:	Robert Thomas Bachman
Link to Full Text	:	https://link.springer.com/chapter/10.1007/978-3-031-38993-1_17
Link to Scopus Preview	:	https://www.scopus.com/inward/record.uri?eid=2-s2.0-85174863093&doi=10.1007%2f978-3-031-38993-1_17&partnerID=40&md5=4652fad32d49a70c6156245080c314f9
Abstract	:	The key problems that the world's agriculture will confront in the coming decades are adjusting to climate change, using scarce natural resources more effectively while fully recovering biowaste to create a circular economy, and reducing poverty and hunger. Future increases in food consumption will require increased productivity from crops like oil palm. The primary issue is the excessive use of chemical fertilisers, which has an impact on soil fertility, climate, and oil palm productivity. Potentially, converting biowaste, i.e. oil palm biomass, into biochar and applying it as a soil amendment through a proper nutrient management for oil palm cultivation are targeted to improve nutrient use efficiency and crop productivity. The nutrient leaching is influenced by the oil palm root system, fertilizer (solubility) and soil (erosion) characteristics, rainfall pattern, as well as fertilizer application method and the rate should be remediated with biochar-based soil enhancer to accelerate oil palm growth via efficient biochar-fertilizer interaction. Oil palm biomass-to-biochar application in soil retains nutrients, increases water holding capacity and microbial growth response, and improves soil fertility, thus can be a promising and sustainable approach not only in contributing to crop's enhanced productivity but also mitigating problems of potential pollution associated and disposal for creation of a circular palm oil economy. In the long run, biochar application as a soil amendment can contribute to fertilizer cost reduction which occupies up to 40–45% of the overall field cost in oil palm cultivation.