

Testing a new material - the agriculture waste ó"as a replacement to the synthetic fibers in wastewater treatment using the ABR

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Abstract

Achieving high efficiencies in anaerobic baffled reactor (ABR) for reducing chemical oxygen demand (COD) has always been an outstanding challenge for most researchers as most experiments focus on using fibers in ABR to reduce COD. In this paper a new material was introduced as a replacement for fibers which is the agricultural waste such as palm fibers and ficus trees. The Effect of using agricultural wastes on the performance of the (ABR) in reducing COD was tested for four different stages (start-up, steady state, shock and final). Both palm fibers and ficus trees samples achieved higher COD removal efficiencies as compared to previous studies. The palm fiber samples achieved the highest COD removal efficiency in the four stages as compared to the ficus tree samples. The COD removal efficiency of palm fiber sample reached an average value of 93.07% and a pH value ranging between 6.99 to 7.15 where the ficus tree samples reached 88.37% and a pH value ranging between 6.9 to 7.12. The reason why palm fiber samples reached high efficiencies could be contributed to the nature and characteristics of the palms. Palms have high surface area and void ratio which allow the acidogenic bacteria to breed and replicate, which decompose the organic materials.

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