

Treatment of Grey Water from Different Restaurants in FUTA Using Fungi

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Abstract : Greywater samples were obtained from three restaurants in the Federal University of Technology; Akure coded SSR, MGR and GGR. Fungi isolates obtained include *Rhizopus stolonifer*, *Aspergillus niger*, *Mucor mucedo*, *Aspergillus flavus*, *Saccharomyces cerevisiae*. Of these fungi isolates obtained, *R. stolonifer*, *A. niger* and *A. flavus* showed significant degradation ability on grey water and was used for this research. A simple bioreactor was constructed using biodegradation process in purification of waste water samples. Waste water undergoes primary treatment; secondary treatment involves the introduction of the isolated organisms into the waste water sample and the tertiary treatment which involved the use of filter candle and the sand bed filtration process to achieve the end product without the use of chemicals. *A. niger* brought about significant reduction in both the bacterial load and the fungi load of the greywater samples of the three respective restaurants with a reduction of (1.29×10^8 to 1.57×10^2 cfu/ml; 1.04×10^8 to 1.12×10^2 cfu/ml and 1.72×10^8 to 1.60×10^2 cfu/ml) for bacterial load in SSR, MGR and GGR respectively. Reduction of 2.01×10^4 to 1.2×10^1 ; 1.72×10^4 to 1.1×10^1 , and 2.50×10^4 to 1.5×10^1 in fungi load from SSR, MGR and GGR respectively. Result of degradation of these selected waste water by the fungi showed that *A. niger* was probably more potent in the degradation of organic matter and hence, *A. niger* could be used in the treatment of wastewater.

Keywords : *Aspergillus niger*, greywater, bacterial, fungi, microbial load, bioreactor, biodegradation, purification, organic matter and filtration

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