

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM.



A PROJECT REPORT ON

BIOMETHANATION OF EFFLUENT FROM DESICCATED COCONUT INDUSTRY

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MASTER OF TECHNOLOGY IN ENVIRONMENTAL ENGINEERING

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Abstract

Desiccated Coconut industries discharge wastewater that has extremely pungent and rancid oil odours that is often intolerable. Attempts to treat this waste water, has not resulted in successful conversion of the effluent to acceptable standards. Field observations suggest that the effluent reaches a very low pH value rapidly within a few hours of its generation. The effluent has about 2-5% oil that is known to become rancid rapidly and poses odour problems. These breakdown products of oil decomposition, produces potential inhibitors to anaerobic digestion. In the present study, centrifugation is employed in the separation of the oil from the effluent, centrifugation speed was varied from 6000-12000 rpm and centrifugation time was varied from 30 to 105 min and all the experiments were carried out at 30°C. The highest oil separation achieved is 2.97% at 12000 rpm and 105 min. Some oil and pulp will be found in this wastewater after centrifugation, but at concentrations acceptable for anaerobic digestion. Biomethanation is also carried out for the effluent after oil separation with 60% reduction in BOD and 75% reduction in COD levels. Biogas generated is about 35-40 m³/d can be used for in house applications; this will be cost saving for the establishment.