SHRI B.V.V. SANGHA'S
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BAGALKOT – 587 102
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Project Report on

"TREATMENT OF SUGAR PROCESS WASTE WATER AND BIO GAS PRODUCTION USING ALGAL BIOMASS"

A Dissertation submitted to Basaveshwar Engineering College (Autonomous), Bagalkot. In partial fulfillment of the requirements for the award of the degree of

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Submitted by
SAILAJA.B
(USN: 2BA12CEE08)

Under the Guidance of
Dr. Bharati S Meti
Department of Civil Engineering
Basaveshwar Engineering College, Bagalkot

ABSTRACT

Present study was to evaluate the growth of green algae *Chlorella*'sp in sugar process waste waters samples. Algae growth pattern was studied using three diff technique viz...Growth determination by optical density, centrifugation and Cell count by Hemocytometer and compared with BBM media. During this nutrient removal, COD and BOD reduction was also recorded. Many researchers working in the field of wastewater treatment, in this a newly developed wastewater treatment by algae is gaining much importance. Microalgae are also used for phytoremediation to reduce the nutrient content in the wastewater due to their (algae's) ability to assimilate nutrients into the cells. In this present study, when *Chlorella* sp was grown in sugar process waste water (open system) it reduced Total Kjeldahl nitrogen by 64.28%,Phosphorus 61%, COD 85% and BOD 88%.Based on the laboratory scale study it can be concluded that *Chlorella* sp has the potential to utilize nutrient content of wastewater for its mass growth. Thus obtained algal biomass was co digested with undigested sludge from sugar industry. The results showed that the biogas production and methane content was improved after addition of microalgae. The demand for biogas is continuously growing and the biogas substrate, such as food waste, may soon become limited and it is therefore important for biogas producers to expand the range of substrates. One way to enhance the biogas may be co-digestion of algae with any substrate.