VISVESVARAYA TECHNOLOGICAL UNIVERSITY

BELGAUM -590014

Project Report
On

ENERGY EFFICIENT ALGAE BIOMASS CULTIVATION FOR SUSTAINABLE BIODIESEL AND BIOGAS PRODUCTION

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ABSTRACT

The increase in the human activities and over consumption of fossil fuels has led to the energy crisis, which is the major issue of the 21st century.The need for the production of sustainable fuels, which is an alternative fuel source has acquired a great importance.Various projects for the production of biodiesel using green algae *Chlamydomonasreinhardtii,* is been carried out over a decade now. The use of *Chlamydomonasreinhardtii*in the production of Biodiesel has gained a great success due its fundamental and practical importnce.

Our project focus on the production of energy efficient Biodiesel and Biomass, whose principle is to extract the maximum amount of energy from the biomass, the biodiesel production ie the lipid extraction from the biomass through the trans-esterification process and the residue is then subjected for the anaerobic process for the biogas(methane) production and the leftover residue can used for various other purposes.

Upon the completion of the project, we would convert the maximum energy from the algal biomass in different forms.

Keywords:Biodiesel, Biogas, *Chlamydomonasreinhardtii*,Transesterification, Anaerobic digestion.