



Visvesvaraya Technological University

Jnana Sangam, Belgaum - 590018

8th Semester Project Report (Jan-May 2012)

on

***“VALUE ADDITION PRODUCTS FROM GLYCERIN
TO GENERATE GREEN POWER”***

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Chapter 1**ABSTRACT**

Biofuels will likely be part of a portfolio of solutions to high energy prices, including conservation, more efficient energy use, and use of other alternative fuels. With the recent rising prices of fossil fuels, development of alternative renewable biofuels has become attractive. Our previous research consisted of biodiesel production from Chicken Feather meal which generated crude glycerol as waste by-product and it is a surplus in biodiesel industries. Refining glycerin into pharma grade is not economical.

Characterization of crude glycerol such as viscosity, organic residue, ash and moisture content was done. To maximize the full economic potential of the biofuel process; crude glycerin was utilized in three different forms: Solid bio-pellets utilizing its binding property for briquetting with various biomasses to produce a comparable coal substitute. Optimized ratios of biomass to glycerin for pelletting were recorded. Efficient burning of gly-coal was tested and its response was positive to calorific value and emission tests. Secondly, Gly-ethanol employing glycerin as sole carbon source for anaerobic fermentation by *Saccharomyces cerevisiae*. Fractional distillation was applied for purification and assay by potassium dichromate was conducted. Lastly, Gly-gas production, where glycerin serves as an enhancer withal feedstock in biogas plant, by anaerobic digestion of green waste which gives rise to combustible methane and carbon dioxide. Our project focuses on creating a sustainable, feasible, and environment friendly product that will increase the awareness of biodiesel to alleviate the reliance on fossil fuels.