

A

Major Project Report on

**PRODUCTION OF BIOETHANOL FROM COCONUT HUSK**

Submitted by

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*In partial fulfilment for the award of the Degree of*

**BACHELOR OF TECHNOLOGY**

**IN**

**CHEMICAL ENGINEERING**

**Under the guidance of**

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### **ABSTRACT**

The growing demand for renewable and sustainable energy sources has sparked extensive research into converting agricultural residues like coconut husk into bioethanol. This study delves into the bioethanol production process, covering pre-treatment, acid hydrolysis, and fermentation stages, with a focus on optimizing techniques to improve yield and efficiency. Using 8g of coconut husk powder, acid hydrolysis was conducted with varying sulfuric acid ( $\text{H}_2\text{SO}_4$ ) concentrations (2% to 10%) in a fixed volume of 80ml. The analysis revealed that the highest cellulose conversion rate (6%) was achieved with a 6% concentration of  $\text{H}_2\text{SO}_4$ . Further experiments elucidated the significant influence of temperature and reaction time on cellulose conversion rates during acid hydrolysis.

The result shows that, an 8-day fermentation period proved most effective for maximizing alcohol production, resulting in a remarkable 30% bioethanol yield. Post-fermentation analysis using UV spectroscopy accurately quantified bioethanol content, validating the efficacy of the optimized process parameters.

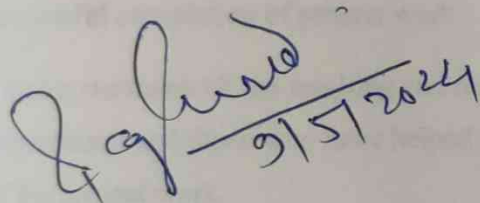
These findings underscore the importance of meticulous process optimization in harnessing the full potential of agricultural residues for bioethanol production. This research contributes to advancing sustainable energy solutions and promoting the transition to a greener future.

## CERTIFICATE

This is to certify that the thesis entitled: “**Production of Bioethanol from coconut husk**” submitted by Madela **Vinay Kumar (20101030)**, **Yashvardhan Prakash (20101065)** to the Guru Ghasidas Vishwavidyalaya towards partial fulfilment of the requirements for the award of the Degree of Bachelor of Technology in Chemical Engineering is a bonafide record of the work carried out by him/her/them under my/our supervision and guidance.

### **Approved by**

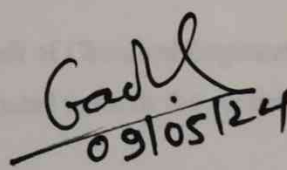
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