**Project Group No:**

**Register No: Name:**

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**CHARACTERIZATION AND FRACTIONIZATION OF *COCOS NUCIFERA* SHELL FOR ETHANOL PRODUCTION**

**Name of the Guide:** Dr.Kiran Babu Uppuluri

**Outline of Work**

Agricultural wastes have become an increasing concern in recent years. C***ocos nucifera*** (coconut) shell (CS) is one of the major agricultural waste produced in India. ***Cocos nucifera*** shell has used for several beneficial purposes,as a major feed stock for energy production, charcol for activated carbon and eco-friendly utilization of CS has always been a challange for scientific apllications and they may also create some environmental and health issues.The present study deals with the characterization of ***Cocos nucifera*** shells collected from nearest farm house.The collected shells are subjected to different pretreatment methods include acid and alkaline to investigate the ***Cocos nucifera*** shells to fractionates into cellulose, hemicelluloses, and lignin. Subsequently, the characteristics of the biomass, cellulose, halocellulose, and nanocellulose will be determined by utilizing X-ray diffraction (XRD), Nuclear magnetic resonance (NMR) and thermogravimetric analysis (TGA) and the calorific value will be determined by the bomb calorimeter. The functional group of biomass, cellulose, and nanocellulose is to be determined using Fourier transform infrared spectroscopy (FT-IR), morphological studies will be viewed using Scanning Electron Microscopy (SEM) and Transmission Electron Microscopy (TEM). The proximate analysis for the biomass is to be done for the moisture content, carbon value, ash value, and the volatile analysis. The ultimate analysis is to be done for the biomass for the testing of minerals and C, N, O, H analysis. The fractionates are further used for bioethanol production using co-fermentation of ***Cellulomonas uda*** (NCIM 2353) and ***Zymomonas mobilis*** (MTCC 91 ) ***Cellulomonas uda*** acts on the fractionates to produce fermentable sugars and those fermentable sugars will be fermented to bioethanol by***Zymomonas mobilis***.

*Keywords:* ***Sterculia foetida***, ***Cellulomonas uda***, ***Zymomonas mobilis,***proximate analysis, ultimate analysis, bioethanol production

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**Signature of the Student Signature of Guide with Date**

**Review Meeting :**

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