A PROJECT REPORT ON

PRODUCTION OF BIOETHANOL FROM PRESSED OIL SEED CAKES USING *Pichia* SPECIES

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ABSTRACT

This project deals with the bioconversion of cellulosic and starchy material from pressed oil cakes of bio-diesel plant origin into bio-ethanol by acid pretreatment, hydrolysis and fermentation using *Pichia* species. The use of oil seed cakes is an excellent means for the production of bio-fuel. Taking this as the objective, the efficacy of bio-ethanol production using *Pichia pastoris* and *Pichia fermentis* was assessed. Four different raw materials such as oil seed cakes were used such as, *Pongamia pinnata (Pp), Hevea brasileinsis (Hb), Scleropyrum pentadrum (Sp)* and *Calophyllum inophyllum (Ci)* were subjected to 2.5% acid hydrolysis to convert cellulose, lignocelluloses and starch into simple sugars and further subjecting it for fermentation by *Pichia pastoris* and *Pichia fermentis* to convert the sugars into ethanol. 5% of oil seed cakes were used. Ethanol yield per kg of the oilseed cakes with respect to *P. fermentis* were Pp (0.4 kg/kg of sugar), Hb (0.4177 kg/kg of sugar), Sp (0.1892 kg/kg of sugar) and Ci (0.154kg/kg of sugar) respectively, with respect to *P. pastoris* were Pp (0.413 kg/kg of sugar), Hb(0.3562 kg/kg of sugar), Sp (0.2112 kg/kg of sugar) and Ci (0.154 kg/kg of sugar) respectively. There was no significant difference in ethanol yield between *P. pastoris* and *P. fermentis*