OPTIMIZATION OF TRANSESTERIFICATION PROCESS FOR SYNTHESIS OF BIO-DIESEL FROM WASTE OIL BY HALO ALKALOPHILIC AND THERMOSTABLE LIPASE FROM *Bacillus pumilus*-MVIT06

(35s-B038)

PROJECT REPORT

Submitted by

Nida Siddiqui, Harshal Soni, Manjula M

Under the guidance of

Dr. Chandrashekhar Naik
Assistant Professor
Department Of Biotechnology
Sir M Visvesvaraya Institute of Technology
Bangalore-562157

Under Student project program of KSCST and Sponsored by KSBDB

ABSTRACT

Recently, with the global shortage of fossil fuels, excessive increases in the price of crude oil and increased environmental concerns have resulted in the rapid growth in biodiesel production. The central reaction in the biodiesel production is the transesterification reaction which could be catalyzed either chemically or enzymatically. Enzymatic transesterification has certain advantages over the chemical catalysis of transesterification, as it is less energy intensive, allows easy recovery of glycerol and the transesterification of glycerides with high free fatty acid contents. Limitations of the enzyme catalyzed reactions include high cost of enzyme, low yield, high reaction time and the amount of water and organic solvents in the reaction mixture. Thus the objective of the project is trying to overcome these limitations in the enzyme catalyzed transesterification processes by producing and characterising an haloalkalophilic and thermostable lipase. The enzyme production was carried out in waste oil in order to reduce the cost of enzyme and transesterification process becomes cost effective for biodiesel production from waste oils.