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DEPARTMENT OF BIOTECHNOLOGY

A PROJECT REPORT ON

SOLID STATE FERMENTATION OF AGRO-WASTE FOR INDUSTRIAL LIPASE PRODUCTION

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ABSTRACT

Enzymes are among the most important products obtained for human needs through microbial sources. A large number of industrial processes in the areas of industrial, environmental and food biotechnology utilize enzymes. Current developments in biotechnology are yielding new applications for enzymes. Solid-state Fermentation holds tremendous potential for the production of enzymes. It can be of special interest in those processes where the crude fermented product may be used directly as the enzyme source. Potentially many high value products as enzymes, metabolites, antibiotics could be produced in SSF, and almost all known microbial enzymes can be produced under SSF systems.

In recent years, however, the SSF processes have been increasingly applied for the production of lipase enzyme. A strain of *Pseudomonas aeruginosa* was used for the production of lipase in solid cultures. The study included collection of agro-wastes including Sugarcane waste, Dal waste, Corn waste, Ground nut, Safflower and Niger seed waste. Lipase are used widely in detergents, food, flavour industry, biocatalyst resolution of pharmaceuticals, esters and amino acid derivatives, making of fine chemicals, agrochemicals, biosensor, a bioremediation cosmetics and perfumery.

The present study was undertaken to examine the effectiveness of agro-wastes as a substrate for lipase production, purification, and characterization of the enzyme.

Key words: Solid state fermentation, Lipase enzyme, *Pseudomonas aeruginosa*