

CHARACTERISATION OF A BACTERIUM LIPASE

(Bacillus subtilis) FROM VEGETABLE OIL POLLUTED SOIL

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ABSTRACT

Bacteria are very useful in protecting the environment. The lipolytic activities of physiologically diverse bacteria have great potential to degrade oil spills in the environment. There is a need for extensive characterisation of the bacterium lipase for the treatment of vegetable oil-polluted sites. This work was carried out to preliminarily characterise the lipase of Bacillus subtilis.

Bacillus subtilis was screened for lipase production using standard methods. Temperature, pH, ion concentration (NaNO and MgSO₄), enzyme concentration, nitrogen concentration, substrate concentration, time course and agitation speed were optimized for the lipase activity as well as growth.

The Crude enzyme of Bacillus subtilis had the highest lipase activity and growth of 0.5 U/mL and 0.929mg/mL respectively at room temperature, but when production was optimised higher activity 0.6 U/mL was seen in the use of urea as nitrogen source. Agitation did not support lipase production. Glycerol as a substrate had highest growth of 1.637 mg/mL.

The enzyme has good potential for the hydrolysis of vegetable oils, which is an important factor in environmental cleanup of vegetable oil spill site.

KEYWORDS: *Characterisation, Vegetable Oil Spill, Lipase Production*

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