



Conference Abstract

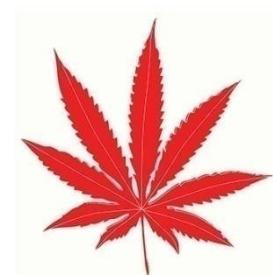
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Conference Abstract

ISOLATION & CHARACTERIZATION OF THERMOPHILIC ALKALINE LIPASE PRODUCED BY DIFFERENT BACTERIAL SPECIES FROM OIL-CONTAMINATED SOIL SUITABLE FOR DETERGENT INDUSTRIES

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ABSTRACT

The aim of this study was to isolate and characterize thermophilic alkaline lipase produced by different lipolytic organisms from oil-contaminated soil and incorporate into the formulation of laundry detergents instead of essential oils & surfactants because they have certain harmful effects on humans and the environment including irritation in eyes, skin, mucosal surfaces and may cause skin cancer. For this purpose, six different oil-contaminated soil samples were collected and screened for lipase producing bacterial species on Tributyrin agar. Different lipase producing organisms were isolated and identified by conventional bacteriological analysis. The extracellular crude lipase enzyme was obtained by submerged technique, partial purification was done by ammonium sulfate precipitation and then lyophilized the partially purified lipase enzyme and incorporate into the formulation of laundry detergent. The results were showed that *Pseudomonas aeruginosa* and *Proteus vulgaris* both have the highest lipase activity at 40°C and 37°C within 7 to 9 pH as compared to *Staphylococcus aureus* and *Bacillus subtilis* that were active at 37°C with pH 7. The specific activity of the partially purified lipase enzyme was obtained as 225.4 U/mg, 203.33 U/mg, 159.5 U/mg and 161.9 U/mg respectively. After the integration of the purified powdered form of lipase enzyme into the formulation of laundry detergent was showed better efficiency for removing the oil stain. It can be concluded that oil-contaminated soil constituted a commercially productive source of lipolytic microorganisms, which can be utilized for making bio-detergents and it considers the most novel idea to overcome the environmental and human health issues which are generating by the usage of commercially laundry detergents through the modification of the laundry detergent by using lipase enzyme.

Keywords: lipolytic organisms, lipase enzyme, purification, formulate laundry detergent.

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Competing Interests:

The authors declare no competing interest's

Additional information is available at the end of the article.

