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## ISOLATION AND IDENTIFICATION OF LIPASE PRODUCING FUNGI AND PARTIAL CHARACTERIZATION OF THEIR LIPASE

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Lipases catalyze the hydrolysis of ester bonds in triacylglycerols resulting fatty acids and glycerol. Lipase is a major commercial enzyme which has a wide range of industrial and biotechnological applications. Lipases are widely distributed in nature, occurring in animals, plants and microorganisms. The lipases preferred for industrial applications are those produced by microorganisms. Yet many lipolytic fungi and bacteria have not been characterized and may possess lipases with advantageous properties. The present study was aimed at isolating lipolytic fungi and characterization of their lipases.

Soil samples were collected from the premises of the University of Peradeniya. Serially diluted water extracts of the samples were plated on olive oil emulsion-agar medium to detect lipase secreting soil fungi and five species which exhibited clear zones around the colonies were selected. Based on their morphological characteristics, the five species were identified as *Aspergillus* sp., *Cladosporium* sp., *Mucor* sp., *Paecilomyces* sp., and *Rhizopus* sp.

The crude lipase preparations from all five fungi were obtained by growing them in submerged cultures. Chromogenic plate assay using olive oil and phenol red showed that the best secretor of lipase was the *Cladosporium* sp. In the quantitative assay employing *p*-nitrophenyl palmitate, lipase preparation from the *Cladosporium* sp. gave the highest activity of 12.25 Uml<sup>-1</sup> whereas the activities of other fungal preparations ranged from 2.8 -0.3 Uml<sup>-1</sup>.

The optimum temperature and pH of the crude lipase of *Cladosporium* sp. was 60 °C and pH 8, respectively. Olive oil was the best substrate for lipase production by *Cladosporium* sp. when compared with glucose, starch, coconut oil or Tween 20 and highest activity was observed with 3% (w/v) olive oil containing medium. Further studies on this *Cladosporium* sp. lipase may be useful for future application of this enzyme.