



## POSTERS

### SESSION 1

#### Biologics

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#### Isolation of lipase producing streptomyces sp. 30 from the western Indian soil

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**Objective** Lipolytic enzymes are currently attracting enormous attention because of their biotechnological potential. Most of the lipases used in industry are microbial enzymes, of both fungal and bacterial origin. Bacterial lipase for industrial use is mainly recovered from *Pseudomonas*, *Bacillus* and *Streptococcus* species. There are few reports on lipase produced from actinomycetes. Lipase produced from *Streptomyces exofolius* has different kind of activity than any other lipase. This suggests that many more different and novel lipases can be availed through actinomycetes.

**Methods** Lipase was extracted by chilling out methods and lyophilized. Total protein count was done by modified Lowry method. Extracted lipase was used for

various activities (esterase, lipase, bioemulsifier and proteolytic). Crude enzyme was assayed for effects of various environmental factors (pH, temperature, metal ions, effect of calcium ions, EDTA) using Tween assay in micro-titer plates.

**Results** The protein concentration of extracted enzyme was found to be 92%. The results reveal that crude isolated lipase was a mixture of different proteins showing different kind of activity and they were substrate specific (Table 1). Optimum pH and temperature were found to be pH 7 and 8.5 and 37 °C, respectively. After Ca<sup>+2</sup>, presence of Mg<sup>+2</sup> ions resulted in a maximum lipase activity. However, the presence of K<sup>+</sup> ions exerted an antagonistic affect on the lipase. At low ionic concentration of EDTA (1–10 mM) there was a slight and gradual decrease in the lipase activity.

**Table 1** Activity of lipase produced from *Streptomyces exofolius*

	Substrate	Activity
Lipase activity	Olive oil	7500.87 ± 2.8
	Castor oil	3248.00 ± 1.4
	Eucalyptus oil	1294.03 ± 0.6
Esterase activity	Tween 80	504960.24 ± 4.1
	pNPP	15241 ± 2.8
Protease activity	BSA	11.24 ± 0.4

**Conclusions** The crude enzyme was a mixture of different enzymes. From the pH study, it contains more than one lipase isomer. Our lipase was calcium dependent and no other metal salts replaced Ca<sup>+2</sup>. The enzyme had better lipolytic activity than bioemulsifier activity against castor oil and olive oil, while having a better bioemulsifier activity than lipolytic activity against eucalyptus oil. Results point out that the bioemulsifier activity of the enzyme was not due to the lipolysis of oil.