



## Cobalt has Enhancing Effect on Extracellular Lipases Isolated from *Pseudomonas aeruginosa* JCM5962(T)

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**Abstract :** Present study demonstrates effect of metal ions and inhibitors on the activity of lipase, isolated from *P.aeruginosa*. Seven different concentrations (0.1mM - 20mM) of twelve metal salts and two inhibitors, EDTA and SDS were studied for their effect on lipase. The results demonstrated that ten metal ions, namely  $Fe^{+2}$ ,  $Zn^{+2}$ ,  $Ba^{+2}$ ,  $Na^{+}$ ,  $NH_4^{+}$ ,  $Mg^{+2}$ ,  $K^{+}$ ,  $Li^{+}$ ,  $Ca^{+2}$  and  $Cu^{+2}$  reduced the activity of lipase enzyme at a concentration of 20mM; where some of these moderately increased the activity and then suppressed. While Mercury completely inhibited the enzyme at a concentration as low as 0.5mM; Cobalt showed significantly activating effect on it. Both had their effect in a dose dependent manner and all concentrations of  $CoCl_2$  enhanced lipase activity, with a 58% increase of initial activity at 20mM concentration.  $Na^{+}$ ,  $NH_4^{+}$ ,  $Ba^{+2}$ ,  $Li^{+}$ ,  $Mg^{+2}$  and  $K^{+}$  were not found to be significantly affecting the enzyme. The enzyme was also tested for two inhibitors, EDTA and SDS; both reduced the enzyme action and SDS showed complete inhibition at highest concentration, suggesting the dependence of enzyme on metal ions. Lipases, being one of the most extensively used industrial enzyme, a stable variant from a microbial source may be of immense potential.

**Key words:** Lipase, Mercury, Cobalt, *Pseudomonas*, Metal ions, chelating agents.

*International Journal of PharmTech Research*, Vol.10, No.1, pp 45-49 (2017)

<http://dx.doi.org/10.20902/IJPTR.2017.1016>

Aditi Singh *et al* /International Journal of PharmTech Research, 2017,10(1): 45-49.

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