



ABSTRACT

In the present study, different yeast cultures including *Candida utilis* NRRL-Y-900, *Candida lipolytica* NRRL-Y-1095, *Candida tropicalis* NRRL-Y-1552 and *Saccharomyces cerevisiae* IIB-1, were screened for extracellular lipase production in solid state fermentation (SSF). Among these, the maximum enzyme production was achieved by *C. utilis* NRRL-Y-900. Different solid substrates (canola meal, almond meal, coconut oil cake, soybean meal, barley bran and wheat bran) and moistening agents (distilled water, 0.01 N HCl, saline water, Vogel's medium (pH 5.5), phosphate buffer (pH 6) and sodium acetate buffer (pH 5) were also evaluated for the best enzyme production. The maximum enzyme activity of 3.14 ± 0.08 U/g/min was achieved when soybean meal (20 g with particle size of 3 mm) moistened with phosphate buffer (2:5 substrate to diluent ratio) was incubated at 30°C, pH 6.5 for 60 h after inoculating with 7.5 % inoculum of 24 h old yeast culture. The best organic and inorganic nitrogen sources for lipolytic activity were meat extract (2 %) and ammonium sulphate (0.4 %) respectively. The enzyme activity was stimulated by Fe^{+2} (5 mM) and minimum activity was exhibited by Mn^{+2} (10 mM). The enzyme exhibited maximal activity with Tris-HCl; pH 7.5, when 1 ml of the enzyme was incubated with 12 % olive oil as a substrate at 30°C for 30 min. Sodium dodecyl sulfate (SDS) and β -mercaptoethanol revealed inhibitory effect on enzyme activity while Tween-80 marginally enhanced the activity. The effect of different concentrations of various metallic and non-metallic cations such as Zn^{+2} , Ca^{+2} , Fe^{+2} , Mn^{+2} , K^+ , Cu^{+2} , Ni^{+2} , Na^+ on the activity showed that 5mM Cu^{+2} gave maximum activity (7.27 ± 0.16 U/g/min) while the activity was decreased by Na^{+1} and Ca^{+2} .