

Statistical approach for lipase production from thermotolerant *Bacillus subtilis* TTP-06 isolated from a hot spring

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February 1, 2023

Abstract

In present study, response surface methodology was employed for the optimization of production of extracellular lipase from thermotolerant *Bacillus subtilis* TTP-06 which was isolated from Tattapani hot spring of Himachal Pradesh, India. In Plackett-Burman Design (PBD), interactions among six different factors viz. glucose and peptone concentration; pH, temperature, incubation time and olive oil concentration were studied. The factors which showed a positive effect on the production included glucose and nitrogen concentration; pH and temperature. The optimum values of all these positive factors were determined by using Central Composite Design (CCD). Results of statistical analysis of variance (ANOVA) indicated a p-value of <0.05 which revealed the significance of quadratic model with determination coefficient (R²) value of 0.7846. The optimum concentration of glucose 2.75% (w/v) and peptone 1.65% (w/v) in a medium of pH 7.5 incubated at temperature 55°C for 24 hrs with 1% (v/v) inoculum gave maximum lipase activity of 8.889 U/ml.

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