STATISTICAL ANALYSIS OF GROWTH CONDITIONS OF NE Y ISOLATE BACILLUS SP. PRODUCING L-ASPA GINASE

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Abstract

The concentrations of nutrient elements together with several physical parameters were screened to find out the significant factors for the production of Lasparaginase from newly isolated strain, Bacillus sp. from Sg Klah, Hot Spring, Perak. Then, the significant factors were optimized for enhancing L-asparaginase production from the bacterium strain. Two statistical designs, Two Level Factorial Design and Face Centered Composite Design (FCCD), Design expert @version 8.0 were employed in screening and optimization of the process variables, respectively. 'The results for all experiment runs were analyzed by analysis of variance (ANOVA). Peptone (nitrogen source) concentration and temperature were found as significant factors, positively influenced the production of L asparaginase The two factors were then optimized to increase the desired enzyme production. The optimum peptone concentration and the temperature were found at 1.4 g/L and 30 C, respectively. The L-asparaginase production under optimized conditions increased from 0.15+0 023 Urn", to 0.19 1 0.03 fiduL The kinetic studies showed that the biomass production dropped after 24 hours while L-asparaginase activity is active and positively increased until the fermentation period ended.

Keywords

Author Keywords: Bacillus sp.; L-asparaginase activity; screening; optimization; peptone; 1perature
KeyWords Plus: L-ASPARAGINASE PRODUCTION; MICROBIAL L-ASPARAGINASE; OPTIMIZATION; PURIFICATION

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