



Research article

Enhanced production of phytase from thermotolerant *Aspergillus fumigatus* isolated from rhizospheric zone of Maize fields

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Abstract

Background: Phytase (myo-inositol hexakisphosphate phosphohydrolase) catalyze the hydrolysis of phytate into inositol and phosphoric acid and finds its potential applications in the feed and food industries, environmental protection, aquaculture and agriculture. **Objective:** The objective of the present study was to locate phytase producing microbes from soil samples of maize fields of himachal Pradesh and poultry faeces and its production optimization studies. **Results:** A total of 95 microbes were isolated. They were screened for the production of phytase with calcium phytate as substrate. Out of the 79 bacterial and 16 fungal isolates obtained through primary screening, the fungal isolate *Aspergillus fumigatus* has shown maximum phytase activity and was selected for optimization to maximize phytase production. Different cultural and reaction conditions such as pH, temperature, carbon and nitrogen sources, mineral solution and inducer concentration, inoculum size, incubation time, substrate concentration, buffer system (pH and molarity), Reaction temperature were optimized by using one-variable-at-a-time (OVAT) strategy. After optimization of cultural conditions highest phytase activity (1.64U/ml) was recorded when grown for 72 hrs at pH 5.5, 40°C when inoculated with 200×10^4 spores.