ISOLATION AND BIOCHEMICAL CHARACTERIZATION OF AN AMYLASE PRODUCING THERMOPHILIC BACTERIUM FROM GARDEN SOIL

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Abstract: A thermophilic bacterium (strain Th-3), which was able to degrade starch maximally, was isolated from the soil of Delhi University Botanical Garden. The temperature and pH optima and incubation time for the maximum growth of isolated bacterium were found to be 45°C, pH 6.0 and 24 h, respectively. In addition to amylase production, the bacterium had also shown positive results for production of protease, lipase and catalase as well as for nitrate reduction. Th-3 exhibited maximum amylolytic activity, when assayed at 45°C at pH 6.5 in the culture harvested at 24 hours of growth. The bacterium was non-pathogenic, as tested on Himedia sheep blood agar plates. The strain was sensitive to most of the antibiotics tested, except ampicillin and kanamycin to which it had shown resistance. The biochemical, microscopic and morphological features of the isolated strain indicated that it was Gram-positive, rod-shaped and closely resembled *Bacillus* species.

Keywords: Amylase, Amylolytic activity, Starch degrading enzyme, Thermophilic amylase, Thermophilic bacterium

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