Isolation, Screening and Identification of Halophilic Amylase-Producing Bacteria from Marine Salterns in Okhamandal, Gujarat

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ABSTRACT

Halophilic bacteria are known to thrive under high salt concentration. Additionally, they are also reported to have tolerance against various other stress conditions such as high temperature and pH. Therefore, the enzymes produced by these bacteria are usually stable and active under high salt concentration, pH, and also temperature. Due to their higher functionality under a wide range of harsh conditions, they are a choice of interest in various industrial applications such as food, detergent, pharmaceutical industry, and biofuel production, etc. In the present study, halophilic bacteria were isolated from marine salterns located in Okhamandal, Gujarat, India. A total of 82 isolates were screened for amylase production using a starch agar plate assay, where 30 isolates exhibited amylase activity. Among 30 isolates, most were found to be Gram-positive, rod-shaped, with their pigmentation ranging from creamy white to yellow. Biochemical tests, including catalase, oxidase, H_2S production, indole, methyl red, and Voges-Proskauer, were performed to assess enzymatic and metabolic properties. Considerable phenotypic variation was observed among isolates. Moreover, the Effect of different salt concentrations (0 to 25%) and pH levels (7 to 11) were checked on amylase secretion by the isolates. further, the most potent amylase producers were selected for 16S rRNA gene sequencing in order to determine their taxonomic status and phylogenetic relationships.

Keywords: Halophilic bacteria, Marine salterns, Amylases, 16S rRNA gene sequencing, Phylogeny

How to Cite

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