RESEARCH PAPER

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Isolation and phenotypic screening of alpha amylase producing bacteria from soils of Jammu region

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The enzymes from microbial sources generally meet industrial demand and are cheap. Amylase is the most abundant form of storage polysaccharides is of great significant in biotechnology, in various starch processing industries. About 60 isolates were isolated from four different soil samples of Jammu region of which 40 isolates were pure. In total out of forty isolates twelve isolates gave positive test for starch iodide test one from each source.

Key words : Alpha amylase, Phenotypic characterization, Media optimization

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INTRODUCTION

Soil bacteria and fungi play pivotal roles in various biogeochemical cycles (Molin and Molin, 1997; Wall and Virginia, 1999) and are responsible for the cycling of organic compounds. Soil microorganisms also influence above-ground ecosystems by contributing to plant nutrition (Timonen *et al.,* 1996) and soil fertility (O'Donnell *et al.,* 2001). Microorganisms constitute a huge and almost unexplained reservoir of resources likely to provide innovative applications useful to man. They represent by far the richest repertoire of molecular and chemical diversity in nature.

The biological diversity of the Indian subcontinent is one of the richest in the world owing to its vast geographic area, varied topography and climate. Because of its richness in overall species diversity, India is recognized as one of the 12 mega diversity regions of the world (Virdi *et al.,* 2007; Manikandan *et al.,* 2008). The enzymes from microbial sources generally meet industrial and are more stable than with plant and animal amylases and obtained cheaply (Haq *et al.,* 2002). Starch, which is the substrate of amylase, is the most abundant form of storage polysaccharides is of great significant in biotechnology, in various starch processing industries.

RESEARCH METHODOLOGY

Sample collection:

Samples were collected from different environment sources. Soil samples were taken from potato field, bating method (garden soil), wheat field and maize field from different Jammu areas. These samples were brought to laboratory in plastic bags (Table 1).

Table 1: Samples and their location

Sample type	Location	Sample number
Potato field	Akhnoor	G1
Baiting method	Jammu	K1
Wheat field	Akhnoor	B1
Maize field	Akhnoor	M1

Isolation method:

Amylolytic microorganisms were enriched by inoculating 5g of soil in 250 ml of Erylenmeyer flask containing 100 ml of MEB (Mineral Enrichment Broth) medium composed of yeast extract - 0.5%, peptone- 0.5%, starch- 0.5%, KH_2PO_4- 0.5%, pH- 7.0. The flasks were incubated for 24 hrs at 37 ºC in an incubator shaker. After 24 hrs the culture broth was serially diluted up to 10^{-3} to 10^{-7}. Then 0.5 ml of the diluted suspension from each tube was transferred to MEB plates. The plates were