



Isolation, Screening and Characterization of Amylase Producing Bacteria (*Bacillus* sp.) from the Soil of Different Regions of Patna

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Abstract : Microbial exo-enzymes play a role in degradation of high molecular weight substances. Enzymatic degradation helps complex substrates to degrade into low molecular weight substances that can be easily transported in the cell. Exo-enzymes are hydrolytic in nature and participate in hydrolysis of starch, lipids, casein and gelatin. Starch degrading bacteria are most important for industries such as food, fermentation, textile and paper. Thus isolating pure culture from various soils has manifold importance for various biotechnology industries. Amylase production from bacteria is economical as the enzyme production rate is higher in bacteria as compared to other microorganism. Isolation of amylase producing bacteria was done from the soil of different regions of Patna. Samples were

collected from three different sources which were areas rich in starchy materials such as vermicompost, vegetable dumping site as well as flour mill area. The isolated bacterial strains were screened by activity zone techniques with iodine. Bacterial colony yielding positive starch hydrolysis test were subjected to Amylase activity test. The amylase activity was optimized with respect to temperature and pH of the media in which it was inoculated. Optimum pH for the maximum activity was observed of pH 7.5 and optimum temperature for the activity was 38°C.

Keywords: Amylase, Starch hydrolysis, pH, Enzyme activity, *Bacillus* sp.

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Introduction :

Enzymatic processes are fast replacing chemical processes as the merit of enzymes as industrial catalysts shoulder on their unique properties. Enzymes are highly specific and efficient in catalysis; they are biodegradable and carryout catalytic reactions under mild conditions thereby saving energy and resources (Tewari, 2007). Amylases are capable of digesting glycosidic linkages found in starch to give diverse products including dextrin and progressively smaller polymers composed of glucose units. They are among the most important enzymes and are of