



MOLECULAR CHARACTERIZATION, PRODUCTION AND OPTIMIZATION OF PECTINASE PRODUCER AND ITS INDUSTRIAL APPLICATIONS

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ABSTRACT

A naturally occurring component called pectin is present in many fruits, including berries and apples. Almost all plants contain it, where it adds to the structure of the cell. Pectinase is an enzyme product that is used professionally to break down pectin. Pectinases are widely used in the wine and citrus juice industries. It is used in the fruit juice business for clarification because it lowers viscosity, which results in the creation of clear juice. In the current research, soil samples were taken from six different regions in the Ahmedabad district in an effort to isolate bacteria that produce pectinase from those samples. Primary screening produced a total of 41 strains, of which 14 showed pectinase activity. Screening was done by using Vincent's agar medium containing pectin. Best pectinolytic activity was determined by clear zone of hydrolysis on selective media. Among 14 isolates, Isolate 1 was showing highest zone of utilization which was selected for further study. Pectinase was produced by submerge fermentation technique and physicochemical parameters were optimized in which isolate 1 showed highest activity at pH 7.4, temperature 37°C, incubation period 48hrs., inoculation size, substrate, carbon source, nitrogen source. Isolate 1 was characterized by its cultural, morphological, biochemical and molecular basis by 16S rRNA sequencing and designated as *Bacillus subtilis*. This isolate was applied for fruit juice clarification and demucilization.
