

# ISOLATION, PRODUCTION, QUANTIFICATION AND CHARACTERIZATION OF AMYLASE ENZYME ISOLATED FROM BACILLUS BY USING FERMENTATION FROM BIOWASTE

## Abstract:

Amylases derived from *Bacillus* species, produced through fermentation of biowastes, represent a sustainable solution to meet the enzymatic demands of various industries. These enzymes play a crucial role in converting starch-rich biowastes—such as agricultural residues, food processing by-products, and municipal organic waste—into valuable products like glucose and maltose. *Bacillus*-derived amylases are prized for their robust enzymatic activity, stability across a wide range of environmental conditions, and compatibility with industrial processes. Utilizing biowastes as fermentation substrates not only addresses environmental challenges associated with waste disposal but also offers a cost-effective method for enzyme production. Characterization of these enzymes reveal their biochemical properties essential for optimizing their application in food processing, biofuel production, and pharmaceutical industries. Overall, *Bacillus*-derived amylases from biowaste fermentation represent a sustainable biotechnological approach with significant implications for enhancing industrial efficiency and promoting environmental sustainability.

**Key words:** *Bacillus subtilis*, fermentantion, amylase production, biowaste, DNS reagent

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