Journal of Biotechnology & Biomaterials
ISSN: 2155-952X

latha, J Biotechnol Biomater 2021, 11:6

Commentary Open Access

Application of Microbial Enzymes

latha S*

Biotechnology Department, Andhra University, Andhra Pradesh, India

***Correspondence to:** Sneha latha, Biotechnology Department, Andhra University, Andhra Pradesh, India, E-mail: snehalatha@gmail.com

Received date: June 04, 2021; **Accepted date:** June 18, 2021; **Published date:** June 25, 2021

Citation: latha S (2021) Application of Microbial Enzymes. J Biotechnol Biomater. 11.489.

ABSTRACT

The use of enzymes or microorganisms in meal preparations is an age-old process. With the advancement of tech, novel enzymes with wide range of applications and specificity have been developed and new application areas are still being explored. Microorganisms as an example bacteria, yeast and fungi and their enzymes are widely utilized in various meal preparations for enhancing the taste and texture and they offer enormous economic advantages to industries. Microbial enzymes are the preferred source to plants or animals due to various benefits that is easy, cost- effective and consistent production. The exhibit review discusses the current advancement in enzyme tech for meal industries. A wide ranging list of enzymes utilized in meal processing, the microbial source of these enzymes and the wide range of their application are discussed.

Introduction

Microorganisms have been utilized in meal fermentation since extinct times and fermentation processes are still applied in the preparation of several of the meal items.

Microbial enzymes play an important role in meal industries because they're more steady than plant and animal enzymes. They can be generated by means of fermentation strategies in a cost-effective manner with less time and space requirement, and due to their tall consistency, process modification and optimization can be done extremely easily.

Countless of these enzymes locate many applications in several industrial sectors, e.g. amylolytic enzymes locate applications in food, detergent, money and textile industries.

They're utilized for the making of glucose syrups, crystalline glucose, elevated fructose corn syrups, maltose syrups, etc. In detergent industry, they're utilized as additives to remove starch-based stains. In notes industry, they're utilized for the reduction of starch viscosity for appropriate coating of money.

In textile industry, amylases are utilized for warp sizing of textile fibres. Similarly, enzymes love proteases, lipases or xylanases have wide applications in meal sectors. The following sections provide detailed and updated databases about several meal enzymes of microbial origin.

α-Amylases (EC 3.2.1.1) are starch-degrading enzymes capable of hydrolyzing α-1,4 glycosidic bonds of polysaccharides, which results in the production of short-chain dextrins . These enzymes are widely distributed in all living organisms. Majority of α-amylases are metalloenzymes and require calcium ions for their activity, stability as well as integrity.Wide applications of α-amylases in food industry include baking, brewing, starch liquefaction as well as a digestive aid. They are widely used in baking industry as flavour enhancement and antistaling agent to improve bread quality. During baking, α-amylases are added to the dough for conversion of starch to smaller dextrins, which are subsequently fermented by yeast. It improves the taste, crust colour and toasting qualities of bread.α-Amylases are also used in the manufacture of high-molecular-mass branched dextrins. They are used as a glazing agent for the production of rice cakes and powdery foods. In starch industry, they also find application for starch liquefaction, which converts starch into glucose and fructose syrups. Enzymatic conversion of starch involves three steps: gelatinization, liquefaction and saccharification. Gelatinization involves formation. Of a viscous suspension by dissolution of starch granules. This is followed by a liquefaction process, which reduces viscosity and involves partial hydrolysis. Glucose and maltose are further produced by saccharification. This requires highly thermostable enzymes and most of the starch saccharification is carried out with α-amylases fromBacillus amyloliquefaciencs, Bacillus stearothermophilus or Bacillus licheniformis .For the production of ethanol, starch is converted to fermentable sugars by the action of α-amylases and further fermentation of the sugars to alcohol is carried out by Saccharomyces cerevisiae. Other applications of α-amylases include clarification of fruit juices, which is carried out in the presence of cellulases and pectinases to improve yield as well as to make the process cost-effective.

Glucoamylases (EC 3.2.1.3) are exo-acting enzymes which catalyze the hydrolysis of polysaccharide starch from the non-reducing end, releasing β-glucose. They are also called saccharifying enzymes and are widely distributed in all living organisms. These enzymes are produced mainly by Aspergillus niger and Aspergillus awamori, but the one produced by Rhizopus oryzae is widely used for industrial applications. Majority of glucoamylases are stable at low temperature. At higher temperatures, they lose activity due to conformational change. Glucoamylases find wide range of applications in food industry, such as for the production of high-glucose syrups and high-fructose syrups. They also find application in baking industry to improve flour quality, reduce dough staling, as well as to improve bread crust colour and the quality of high fibre baked products. Glucoamylases convert the starch present in the flour to maltose and fermentable sugars.