

A Note on Microbial Fermentation

Dereddy Mamatha*

Department of Pharmacy, Sri Indu Institute of Pharmacy, Hyderabad, India

ABSTRACT

The process of fermentation is used historically for the preservation of food and for their health benefits. Modern fermentation depends on the modern starter cultures with desirable characteristics to ensure their consistency and the availability. The selection of starters depends on the specific phenotypes that benefit by increasing the shelf life, texture, flavors and ensuring safety.

Keywords: Yeast; Fungi; Fermentation; Ethanol; Photosynthesis.

INTRODUCTION

It is the enzymatic decomposition of the food mainly carbohydrates by the microorganisms. It takes part in the stomach of every animal and human beings and its intensity depends on the number of microbes present in the specific part. It is largely present in the large bowel.

Fermentation is the primary source of producing adenosine triphosphate in the microorganisms by the degradation of organic nutrients anaerobically.

As same as photosynthesis fermentation is a method to extract energy from the molecules. It is generally called as oldest metabolic pathway as it is very common in all the bacteria and the eukaryotes.

Fermentation types: there are three types of fermentation they are lactic acid fermentation, ethanol fermentation/alcohol fermentation and acetic acid fermentation

Lactic acid fermentation: Bacteria and the microorganisms convert the starches or sugar into the lactic acid without the use of heat in this process. In this anaerobic chemical reaction pyruvic acid uses nicotinamide adenine dinucleotide + hydrogen (NADH) to produce lactic acid and NAD⁺.

Ethanol fermentation/Alcohol fermentation: Glycolysis is the breakdown of the pyruvate molecules (output of the metabolism of glucose (C₆H₁₂O₆)) by the yeast. Wine and beer are produced by the alcoholic fermentation

Acetic Acid fermentation: The sugars and starches from the food grains and fruits are fermented into sour tasting substances called

vinegar and their condiments. The examples of this are apple cider vinegar.

Stages of Fermentation

It has different stages based on the fermentation process.

Primary fermentation: In this stage of fermentation the microbes work on the raw materials like fruits, vegetables etc. the microbes prevent putrefying bacteria from colonizing the food.

Secondary fermentation: This stage lasts longer from days to even weeks. In this stage the alcohol levels rise, and the microbes and the yeast die, and their food sources become scarier their by preventing further fermentation. This secondary stage of fermentation is mainly used by the winemakers to make their alcoholic beverages.

National Recommendations

The fermented food is consumed worldwide from thousands of years before the health benefits were understood. Due to the high incidence of lactose intolerance in our countries and it is clinically proven that the fermented food elevates these intolerance symptoms. In India the guidelines encourage the consumption of the fermented food especially women as it increases the bioavailability of iron that is associated with these foods.

CONCLUSION

The fermentation holds the complex reactions between the bacterial species and the food source they are fermenting. The advanced fermented studies show the potential of utilizing this fermentation in more knowledge-based fashion than that of the past.

*Corresponding to: Dr. Dereddy Mamatha, Sri Indu Institute of Pharmacy, Hyderabad, India, E-mail: mamathareddy.dreddy@gmail.com

Received Date: October 10, 2020; Accepted date: October 23, 2020; Published date: October 30, 2020

Citation: Mamatha D (2020) A Note on Microbial Fermentation. J Microb Biochem Technol. 12:445 Doi: 10.35248/1948-5948.20.12.445

Copyright: © Mamatha D. This is an open access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.