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Review Article

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Basic Principles for Effective Food Preservation: A Review

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ABSTRACT

Food preservation is also targeted towards reduction of discoloration of food products by enzymatic browning which occurs during preparation of processed food products. The present article discusses on the biologically and ecologically viable methods for food preservation which is gaining importance in food processing industries. Preservation of food is aimed towards prevention and control of growth of spoilage microorganisms and bacteria including fungi and yeasts and also reducing the rancidity due to oxidation of lipids.

Key words: *Biological, Food, Preservation.*

INTRODUCTION

Lactic acid bacteria are important as natural biopreservatives which possess antagonistic properties against the spoilage bacteria and pathogens[12]. The metabolites of LAB include acidic components like acetic acid, lactic acid, hydrogen peroxide and bacteriocins which are peptide in nature[12]. When the LAB competes for nutrients then they produce these metabolite components and the antimicrobial product, nisin which acts as a promising preservative for food[3,4,11].

The bacterciocins produced by LAB are also used in the Hurdle Technology. Using the bacteriocin producing LAB with other effective preservation techniques is effective in controlling the growth of spoilage microorganisms and inhibiting their generation, growth and bioactivity[1,10,12].

HURDLE TECHNOLOGY

This is a method of rendering the food to be free from contaminating and spoilage bacteria and pathogens by the combination of one or more methods. The pathogenic microorganisms have to pass through these individual approaches called “hurdles” for maintaining their activity in food products. Proper combination of hurdles will lead to destruction of the microbes and can prevent their further growth[5]. The proper combination of the hurdles ensures the microbial safety in food [8] thereby maintaining its nutritional and organoleptic parameters for consumer preference[6,7].

The hurdles include the properties like processing at high temperature, storage at low temperature, lowering pH (increasing acidity), water activity (a_w) and/ or redox potential including the presence of biopreservatives or other preservative components in food products[13,14]. The intensity of the hurdle is ascertained and controlled according to the type of spoilage microorganism(s) and regulated as per consumer safety and preference without sacrificing the quality and appearance of the final food product[5,3,14].

CONCLUSION

Biopreservation is the method used for food preservation by using natural antimicrobials and microbiota thereby increasing the storage life of food[1]. The beneficial products formed due to fermentation by the bacteria are used in this process to reduce the rate of food spoilage and to render the food free from pathogenic microorganisms and metabolites[2,9,15]. This process is gradually increasing in popularity for its ecologically benign approach[1,15].

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