Chapter 6
Recent Insight Into Fermented Foods and Production

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ABSTRACT

The fermented beverages and foods either of plant or animal source play a vital role in the food of society in several parts of the world. The fermented of foods not only afford vital sources of nutrients but also have abundant potential in maintaining health and also preventing various diseases. The bacteria and yeasts are the major groups of microorganisms related to traditional fermented of the foods. Numerous diverse types of traditional fermented beverages and foods are formed at domestic level in the various countries. The advancement of fermentation technology provides value addition to waste food by their complete conversion into the different value-added products. The recent research suggests that the biological functions of fermented foods affect the health due to functional microbes involved during fermentation which provides several health-promoting benefits to the consumers. The emphasis of this chapter is to describe the fermentation technology and their potential to minimize the wastage of foods by conversion of value-added products and their benefits.

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INTRODUCTION

The fermented foods are an essential part of human life from food to medicine and many more, Different types of fermented food used worldwide from morning to evening people are using such as curd, butter, cheese, bread, pickles, wine, beer, fermented vegetables, antibiotics, food supplements fermented meats etc. The scope of food fermentation extended from producing alcoholic beverages, fermented milk, fermented meat and vegetable products to genetically engineered superbugs to carry out efficient fermentation to treatment and utilization of waste and overall producing nutritious and safe products with attractive qualities. (Simango, 1997)

The fermented foods are that food which produced by alteration of the raw material of either animal or vegetable origin by the activities of microorganisms in the absence of oxygen. Bacteria, yeast and moulds can be used to produce a diverse range of products that differ in flavour, texture and stability from the original raw material. The Fermented foods are those foods which are subjected to microorganisms or enzymes to get desirable biochemical changes and cause significant modification to food materials. (Nout, 2003) (Figure 1: Simple representation of fermentation) The concept of fermentation in a biochemical sense the term fermentation refers to the metabolic process in which organic compounds (particularly carbohydrates or sugars) are broken down to release energy without the involvement of terminal electron acceptor such as oxygen. Incomplete oxidation of the substrate occurs so that only a relatively small amount of ATP energy is released compared with the energy generated if a terminal electron acceptor is involved. Partial oxidation of carbohydrate or sugars can give rise to a variety of organic compounds. The compounds formed by microorganisms vary from organism to organism and are produced via different metabolic pathways (Gerardi, 2003).

Figure 1. Yeast mediated glucose fermentation