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Commentary

Role of Beneficial Microorganisms in Food Preparation

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DESCRIPTION

Food is a crucial fundamental substance for human being which provides the vitamins for survival. Food processing is the process of creating food from different raw substances *via* physical and chemical processes. Household and industrial food productions are the two major sources of food preparation. Microorganisms are very tiny in size. They are not seen to the naked eye. Microorganisms are found in all forms of environmental sources like soil, air, water, animal body and plant etc. Some of the microorganisms are used in food processing and food preservation in household and industrial food manufacturing.

Microbial contamination of food products takes place generally on the way from the field to the processing plant, or at some point of processing, storage, shipping and distribution or earlier than consumption. Different food products offer different growth conditions for microorganisms. Microbial growth is managed by means of intrinsic elements like vitamins, pH, moisture content, the physical structure of the food and/or extrinsic elements like temperature, relative humidity, gases (CO_2, O_2).

Microorganisms therefore develop in optimum conditions provided by means of internal and external elements and result in spoilage and degradation of the food product ensuing in a sour, foul-smelling or fungus-covered inedible mass. Currently, more than 3500 traditionally fermented foods exist in the world. They are of animal or vegetable origin and are a part of our day-to-day life. Alcoholic beverages are not the only fermented beverages; cocoa beans, coffee grains and tea leaves are fermented after harvest in order to expand their usual flavor profiles.

Bacteria are the largest group of unicellular microorganisms. The shapes of medically important microorganism are categorized into-cocci, or spherical cells; bacilli, or cylindrical or rod shaped cells; and spiral or curved forms. The pathogenic or ailment causing microorganism are generally gram negative, however, three gram-positive rods are recognized to cause food intoxications: *Clostridium botulinum*, *C. perfringens*, and *Bacillus cereus*. Molds are multicellular filamentous fungi which develop on foods is generally effectively identified by means of their fuzzy or cottony appearance. They are especially responsible for food spoilage at room temperature 25-30°C and low pH, and have minimal moisture requirement.

There are many beneficial applications of microbes in the food industry. They affect the quality, availability and quantity of food. Microorganisms are used to alternate one substance to other which is used as food, which includes milk to yoghurt and cheese, sugar to wine and bread. Fermented milk is produced by means of inoculating pasteurized milk with specific culture of microorganisms. The various fermented dairy products consists yoghurt and cheese.

Food engineering is one of the advanced techniques to enhance the quality and quantity of food by means of usage of microorganisms. Food engineering includes the process of designing and updating the producing process of food products. By food engineering, new food and high-quality biological products can be prepared by the usage of microorganisms. Also, in industries, microorganisms are used for food preservation and food quality.

Antibiotics are important additives of human welfare against infections and diseases. These are manufactured in industries for the usage of microorganism. For example, penicillin is one of the major antibiotics and it is produced by means of the bacteria, *Penicillium notatum*. The production and storage of beverages such as whiskey, brandy, beer and rum is carried out by *Saccharomyces cerevisiae*. Microorganisms are also involved in the commercial production of enzymes. Example: Production of lipase.

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