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Perspective

Molds-Modified Foods: Recent Developments

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DESCRIPTION

Molds (filamentous fungi) have been used to make foods and beverages all throughout the world since the dawn of time. Mold-ripened foods are traditionally utilized all throughout the world. A wide range of meals are created using numerous fungal genera, particularly in Asia. Cheeses and meats fermented with *Penicillium* are the most common mold-ripened items in Europe. Blue cheese is made with *Penicillium roquefortii*, white cheese with *P. camembertii*, and salami and certain raw hams with *P. nalgiovense*. Molds used in food must be non-pathogenic and non-toxic, improve product appearance, flavour, and stability, and preferably suppress harmful microbes. Selection, mutation, and gene technology approaches can all be used to create suitable starter cultures. The nontoxigenicity of *Penicillium* is the most difficult requirement, as most *Penicillium* strains produce mycotoxins. Nontoxigenic isolates of *P. roquefortii* and *P. camembert* are currently unavailable, although they could be created through mutation. Nontoxic strains with acceptable technical qualities have been selected from *P. nalgiovense* and could be improved through gene technological modification. Traditional fungal fermentations in food production retain considerable regional features, notwithstanding their high economic, cultural, and social value. As a result, this Research Topic attempted to bring together a collection of papers related to various types of fermentation products and processes from various areas, in order to provide a worldwide view on molds in fermented food production.

Molds from the genera *Aspergillus, Rhizopus, Mucor, Actinomucor, Amylomyces, Neurospora*, and *Monascus* are commonly used in the food industry in Asia. For centuries, people have known about a variety of mold-ripened foods. According to a series of studies, the microorganisms utilised in Asian Molds-ripened foods are non-toxigenic Molds species, meaning they don't create any known mycotoxins. This is to be predicted where they are members of the genera *Rhizopus, Mucor, Actinomucor*, and *Amylomyces*, as these Mucorales include comparatively few toxigenic strains. However, because *Aspergillus oryzae* and *Aspergillus sojoe*, which are used to create soy sauce, are closely related to *Aspergillus flavus* and *Aspergillus parasiticus*, their use appears to be more dangerous. It's even thought that *A. flavus* and *A. parasiticus* are 'wild strains' of *A. oryzae* and *A. sojoe*, with the latter thought to have evolved as 'domesticable isolates' from these 'wild isolates' over hundreds of years of use as soy sauce starter cultures, losing the ability to produce aflatoxins and cyclopiazonic acid. Only *A. oryzae* and *A. sojae* produce koji acid, and the strains employed by major processors to make soy sauce no longer produce this mildly hazardous mycotoxin.

Molds found in fermented foods and beverages include *Actinomycetes, Mucor, Rhizopus, Amylomyces, Monascus, Neurospora, Aspergillus*, and *Penicillium*. The fundamental purpose of these Moldss in fermented foods is to produce a wide spectrum of enzymes. Protease (acidic, neutral, and alkaline), amylase, glutamidase, pectinase, hemicellulase, and cellulase, for example, can take carbon from starch, oligosaccharide, and monosaccharide, and nitrogen from protein, amino acid, and urea. Maltose effectively induces *Aspergillus oryzae* to secrete various hydrolytic enzymes, such as amylase, *Aspergillus niger*, and *Aspergillus nigrum* to secrete Glucoamylase, and so on. Under the action of amylase and glucoamylase, starchy raw materials are digested into small molecular sugars including dextrin, maltose, and glucose. Non-decomposable monosaccharides, oligosaccharides, and polysaccharides, on the other hand, boost the nutritious value of foodstuffs. Protease breaks down protein source materials into peptides, amino acids, and other functional and taste compounds. At the same time, these small molecular compounds assist bacteria and yeast in their growth and metabolism. As a result, gaining a better understanding of Molds and yeast in fermented foods will aid fermented food progress. There are many different types of indigenous fermented foods available today, but tempeh is one of the most commonly acknowledged and researched mold-modified fermented meals. Tempeh is a traditional fermented cuisine produced from soaked and cooked soybeans inoculated with a *Rhizopus* mould. Following fermentation, dense cottony mycelium binds the soybeans together into a compact cake.

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CONCLUSION

Molds in traditional fermented foods will be studied in order to better understand their metabolic pathways and complicated interactions during fermentation. The new view points for microorganism research in fermented foods, as well as some theoretical direction for the upgrading and transformation of conventional fermented food industrialization. As a result, the utility of complex and diverse Molds and yeasts must be further investigated.