



The Role of the Yeast *Saccharomyces cerevisiae* in Production of Fermented Products - Mini Review

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Short Communication

For thousands of years, the yeast *Saccharomyces cerevisiae* has been an extensively microorganism used by humans in elaboration of food and beverages, mainly associated with fermentation processes [1]. The microorganisms present in food convert chemically the composition of these products, promoting enrichment in nutritional value and health benefits to the individuals [2]. Furthermore, the microbiota of traditional and industrial fermentation processes constitutes an important source of indigenous isolates with characteristics of industrial interest [3,4]. These isolates may also be successfully employed in genetic and metabolic engineering studies [5,6,3]. Fermentation, as a mechanism of desirable biochemical modifications, is the conversion of sugars into products such as alcohols, organic acids, carbon dioxide and flavoring compounds, and this process is mediated mainly by the yeasts and their enzymes [7]. Among other functions, fermentation is performed to control microbial growth, to improve taste, aroma, shelf life, texture, nutritional value of foods, among other attractive properties [8,7,9]. It is estimated that there may be more than 5,000 common varieties of fermented foods and beverages being consumed in the world by billions of people [10,11]. The fermentation process may lead to the detoxification and destruction of undesirable constituents present in raw foods such as phytates, tannins and polyphenols [12] as well as lactose removal [13,14]. For example, cocoa beans are not edible due to their bitter character and astringent taste. However, after being fermented, they become the basic raw material for the production of chocolate [15,16]. The production of good quality fermented foods depends on the presence, growth and metabolism of different microorganisms. Thus, microorganisms confer differentiated characteristics on food through products derived from their own metabolism [17]. The production of organic acids, alcohols and volatile compounds is directly related to the characteristics of the final product [18]. The biological activity of the microorganisms during the process can also result in the production of several metabolites capable of suppressing the growth and survival of undesirable microorganisms [19]. The yeast *S. cerevisiae* have been widely used in fermentation processes and is closely associated with the food and fermented beverages production for human consumption, such as bread, chocolate, wine and beer [20-22]. In addition, these yeasts combine many desirable industrial properties, including high fermentation capacity (ability to take up a wide range of sugars, for example: glucose, fructose, mannose, galactose, sucrose and maltose), flocculation, ethanol tolerance, osmotic pressure, tolerance to low pH and, therefore, they do not promote problems regarding the oxygenation of large volumes in the fermentation industry [23-27]. Fermentative yeasts, especially those belonging to *S. cerevisiae* species, are stable microorganism in food and beverage fermentation, and may be employed in many forms under different fermentation conditions [28]. Moreover, the advances in genetics and microbial ecology of *S. cerevisiae* have been promoted better understanding of strains and knowledge about their role in production of fermented foods and beverages [29]. Several papers have been published using *S. cerevisiae* as starter culture for foods and beverages production, such as in cocoa and coffee fermentations, respectively, with the purpose of making these spontaneous fermentation controlled [30,31]. In addition, others studies have also demonstrated the value of strains isolates from natural environments in obtaining strains with new and improvement characteristics for industry [32-36]. These developments, when associated with other advances in the field of genetics, such as the recombinant DNA technology, can lead to a better performance of fermentation and quality to the final product [37,38].

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