

NON-SACCHAROMYCES YEASTS IN FERMENTED BEVERAGES

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Fermented beverages are drinks obtained through microbial fermentation and include both nonalcoholic products and widely consumed alcoholic beverages such as cider, beer, and wine. Their production is traditionally based on *Saccharomyces cerevisiae* strains, valued for their strong fermentative capacity and technological traits that ensure stable, uniform, and high-quality products. For many years, non-*Saccharomyces* yeasts were considered undesirable contaminants in alcoholic beverage manufacture. However, this perception has changed in recent years, as studies of spontaneous wine fermentation have shown their important contribution to the sensory quality of the final product. Although many non-*Saccharomyces* yeasts have lower fermentative power and ethanol productivity than *S. cerevisiae*, they possess valuable properties absent or less pronounced in this species. These include the production of elevated levels of aromatic compounds, such as esters and fatty acids, as well as the ability to inhibit spoilage microorganisms [1].

Selected and inoculated strain of *S. cerevisiae* can suppress any non-*Saccharomyces* species and dominate the fermentation process, but several studies have shown that non-*Saccharomyces* yeasts can persist during fermentations inoculated with pure cultures of *S. cerevisiae*. These yeasts predominate at the initial stage of the spontaneous fermentation until certain concentration of ethanol is reached up to 5% v/v, then being inhibited due to the effect of the ethanol and the decreasing of dissolved oxygen. The fermentative activity of non-*Saccharomyces* is manifested in the presence of small amounts of oxygen which leads to an increase in cell biomass and the decrease in ethanol yield, a strategy that can be used to reduce the ethanol content of wines produced in coculture with *S. cerevisiae* for low-alcohol beverages obtaining [3]. It is important to note an increasing production of low-alcohol products such as wine and beer in the past decades, which shows that this technology has become more promising. Among the most studied non-*Saccharomyces* yeasts that reached special importance for researchers include *Kloeckera*, *Hanseniaspora*, *Brettanomyces*, *Pichia*, *Lanchacea*, *Kluyveromyces*, *Torulaspota delbrueckii*, *Metschnikowia pulcherrima* [2,3].

Keywords: low-alcohol, fermentation, beverages

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