



TAL 797 – Seminário

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Non-conventional yeasts from wild wines as a strategy for biotechnological advancements in the wine industry

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With a historical lineage of 7,000 years, wine transcends its nature as an alcoholic beverage, playing strategic, economic, and social roles. In the biotechnological context, the exploration of yeast diversity in wild wines has been remarkable in academia, although underutilized in industrial terms. Native yeasts, with unique metabolic profiles, have the potential to shape the quality and sensory attributes of wine products. Furthermore, co-fermentation using wild yeasts stands out for creating distinctive compositions, enriching the uniqueness of wines, and stimulating industrial innovations. In this context, the historical reliance on *Saccharomyces cerevisiae* yeasts is undergoing transformation with the introduction of non-conventional yeasts, such as those from the genera *Metschnikowia* spp., *Hanseniaspora* spp., *Pichia* spp., and *Torulaspota* spp. However, the inclusion of wild yeasts in mass production, especially regarding co-fermentation processes, faces complex technical challenges. Most of these yeasts do not possess fermentative capacity comparable to *S. cerevisiae*, which can result in incomplete fermentations. On the other hand, most of these strains produce secondary products that can enhance the bouquet of the beverage. The solution to this problem often involves simultaneous or sequential co-culturing. However, the metabolic variability of these yeasts can lead to unpredictable fermentations, requiring a deep understanding of the metabolism of the involved strains, as well as their interaction, for effective quality control. Therefore, maintaining wine quality in these processes is crucial but not straightforward. Hence, finding a balance between desired sensory attributes and the unique characteristics of wild yeasts is an additional challenge for the industry when adopting this approach.

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