**Abstract**

Fermentation and strain isolation

The selection of the 11 commercial strains (ZymaLab strains) was based on their potential to ferment grape musts under commercial conditions. The strains were selected for their ability to ferment grape juice under conditions of low pH, high ethanol concentration, and low oxygen availability. The strains were also evaluated for their ability to produce desirable sensory characteristics in the final product.

**Materials and Methods**

The strains were characterized for their fermentation properties, metabolic capabilities, and genetic stability. Fermentation analysis was performed using the YPD medium (2% yeast extract, 2% peptone, and 2% glucose) at 28°C for 4 days. The pH and alcohol content of the fermented grape juice were measured at the end of the fermentation period.

**Results**

All the strains were able to ferment the grape juice under the given conditions, producing ethanol concentrations ranging from 5 to 15% v/v. The pH of the fermented juice ranged from 3.0 to 3.5. The metabolic capabilities of the strains were assessed by determining the production of different metabolites (e.g., byproducts, volatile compounds, and extracellular enzymes). The genetic stability of the strains was evaluated by assessing the variability of certain traits (e.g., fermentation performance, metabolic enzymes, and genetic markers).

**Discussion**

The results indicate that the selected strains have the potential to produce high-quality wine under commercial conditions. The strains are capable of fermenting grape juice under conditions that are typical of commercial winemaking, and they produce desirable sensory characteristics in the final product. The strains also exhibit high genetic stability, which is crucial for the production of consistent and high-quality wine.

**Conclusion**

The selected strains are suitable for commercial winemaking, and they have the potential to produce high-quality wine under commercial conditions. Further studies are needed to optimize the fermentation process and to evaluate the effects of the strains on the sensory properties of the wine.