

## INSIGHTS INTO THE GREEK WINE YEAST MICROBIOTA; SELECTION OF NEW STRAINS FOR ENHANCED TYPICITY IN WINES UNDER HIGH CONCENTRATION OF ETHANOL

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### ABSTRACT

Nowadays, besides ongoing efforts to address the challenges posed by climate change, the isolation and selection of new autochthonous strains to drive vinification is a necessity for the wine industry. This is due to the remarkable adaptability of wild strains to stressful conditions, such as the higher carbohydrate content of grapes and the inability of the commercial yeasts, previously isolated, to fully adapt to this new environment [1-2]. At the same time, there is an increasing demand to exploit indigenous yeast microflora of wine-growing regions, which provide significant diversification to local wines, enhancing typicality and aroma complexity [3]. In contrast, commercial yeasts often lack some unique characteristics linked to biodiversity parameters [4]. In this context, the objective of the present study was to isolate indigenous strains of *Saccharomyces cerevisiae* present in Attiki wine region, select the ones well-adapted to fermentation conditions, and compare them with commercial strains by evaluating the chemical and sensory profiles of wines. Yeast populations were collected from spontaneous alcoholic fermentations of Savatiano grape musts, at the final fermentation stage that reflects tolerance to high alcohol, sulfur dioxide, and elevated carbohydrate content. Four isolates, unable to produce unpleasant flavors (H<sub>2</sub>S), were selected for vinification, in order to assess their technological properties and sensorial characteristics, using two commercial strains as control. The fermentation kinetics as well as the organic acids, ethanol, and glycerol content were monitored on a daily basis using HPLC. The wines produced were evaluated using the descriptive sensory analysis method while they underwent profiling of volatile compounds by GC-MS. Our study revealed that the selected strains metabolized all sugars and produced a satisfactory amount of ethanol. Indigenous strains also supported volatiles and contributed to wines with distinct sensory attributes compared to the ones produced by commercial strains. The data obtained highlight the potential of the indigenous yeasts to provide promising results in wine industry by promoting diverse flavors and aromas in the produced wines and give rise to new products and markets.

**KEYWORDS:** yeast selection, indigenous microbiota, *Saccharomyces cerevisiae*, aroma, volatile compounds

### REFERENCES

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