Volatile metabolites produced by different flor yeast strains during wine biological ageing

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Sherry white wine called Fino is produced by dynamic biological ageing under the action of flor yeasts using traditional practices aimed at ensuring uniform quality and characteristics over time. These kinds of yeasts provide typical sensory properties to Fino wines. Although there are studies of the volatile composition of these wines submitted to biological ageing in wood barrels, there is a lack of knowledge on the particular volatile profile produced by different flor yeast strains from Sherry zone wineries. For this reason, the aim of this study was to analyse the volatile profiles produced by 15 pure culture flor velum yeasts, with the goal of observing their suitability for obtaining high quality Fino sherry wines. Volatile composition was determined by dual sequential stir bar sorptive extraction, followed by GC-MS analysis. All yeast strains studied produced the increase of most acetals, highlighting acetaldehyde diethylacetal which was the compound that most increased. Among terpenes, nerolidol and farnesol underwent remarkable increases. However, results showed that in a month of biological ageing, significant differences were observed among the volatile metabolites produced by flor yeast strains studied. Only some of them stood out for their high production of volatile compounds characteristic of Sherry Fino wines, which are good candidates for producing starter cultures.

Flor yeast

GC-MS analysis

Heatmap

Sherry wine

Volatile compound

Metabolites

Volatile organic compounds

Wine

GC-MS analysis

Heatmap

Sensory properties

Sherry wine

Stir bar sorptive extraction

Volatile composition

Volatile compounds

Volatile metabolites

Yeast