Management of varietal thiols in white and rosé wines using biotechnical tools

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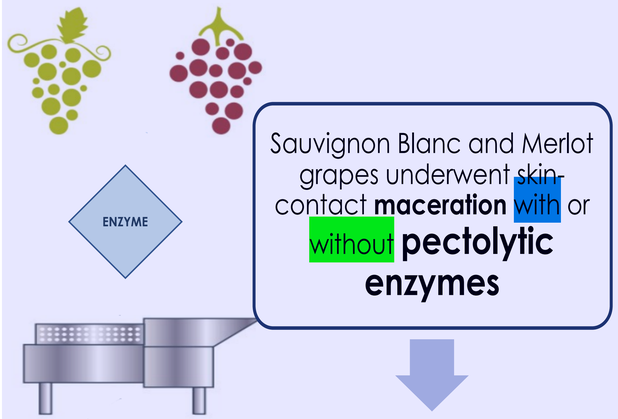

Values are the mean of winemaking process **triplicates** and letters denote significance groups (ANOVA; Tukey'spost-hoc a = 5 %)

Sauvignon Blanc

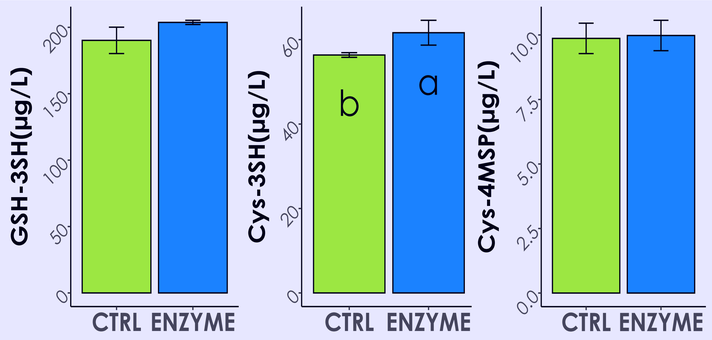

Fig. 1. Thiol precursors in Sauvignon Blanc juice

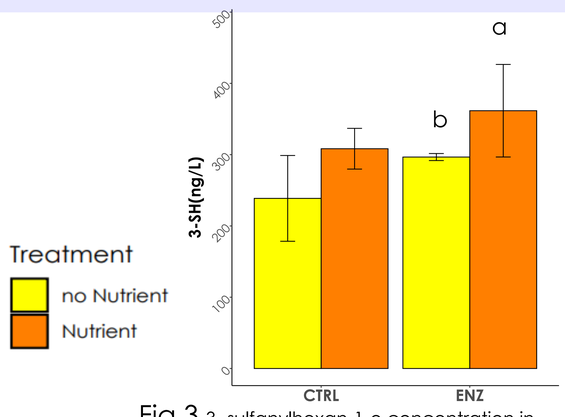

Fig.3 3 -sulfanylhexan-1-o concentration in Sauvigno Blanc wines

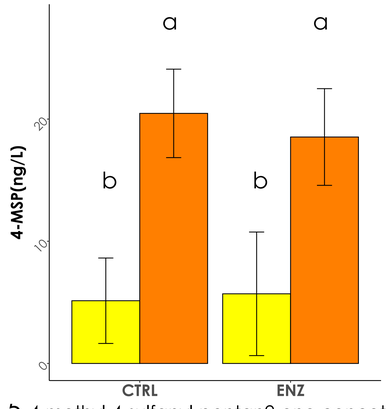

Fig.5 4-methyl-4-sulfanyl-pentan2-one concetrations in Sauvignon Blanc wines

In musts

Significant differences in the extraction of 3-sulfanylhexan-1-ol(3-SH) **precursors** were observed in juices from Sauvignon Blanc and Merlot grapes. The use of pectolytic enzymes led to an increase in the S-cysteinylated (Cys-3SH) precursor in Sauvignon Blanc juice (Fig.1) and both the glutathionylated (GSH-3SH) and cysteinylated in Merlot must(Fig.2). The cysteinylated precursor of 4-methyl-4-sulfanyl-pentan2-one (Cys-4-MSP) was the sole to to be found and only in Sauvignon Blanc, with no difference between treatments.

Merlot Rosé

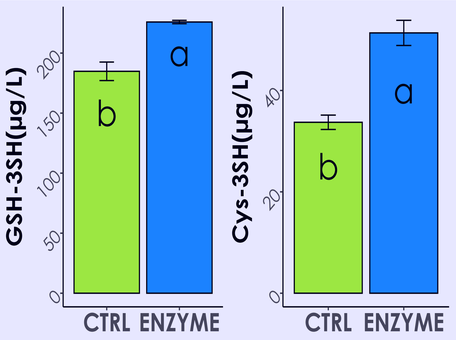

Fig.2 Thiol precursors in Merlot juice

In wines

Nutrition management imparted significant differences between **volatile thiols** in final wines. The use of yeast autolysate increased the 3-SH content by ~25% and ~46% in both Sauvignon Blanc (Fig.3) and Merlot (Fig.4) wines from musts treated with the enzyme. The same trend was observed in non-enzyme trials, even if not statistically relevant. The increase of 4-MSP was about four-fold higher in Sauvignon Blanc wines supplemented with yeast autolysate, in both enzyme and non-enzyme must (Fig.5). In Merlot wines 4-MSP was undetectable.

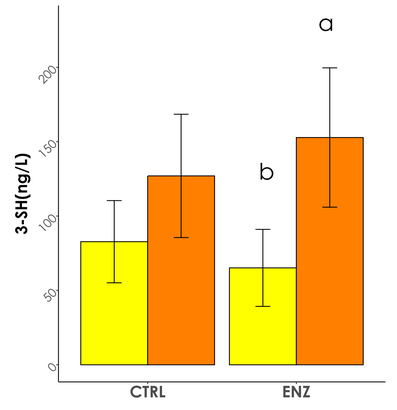

Fig.4 3-SH concentration in Merlot wines

Calculated **CIEL*a*b*** units ΔE* show observable colour differences between the rosé final wines, mainly influenced by the enzymatic treatment (Fig.6).

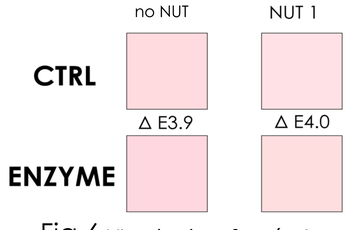

Fig.6 Visual color of rosé wines obtained from CIEL*a*b* coordinates

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