

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

The present study evaluates the effect of prefermentative maceration enzymes and yeast autolysate on the concentration of conjugated precursors and volatile thiols, respectively. Sauvignon blanc and Merlot grapes underwent skin-contact maceration with or without pectolytic enzymes, for the production of white and rosé wines. Significant differences in the extraction of 3- sulfanylhexan-1-ol (3-SH) precursors were observed in juices from Merlot grapes. The use of maceration enzymes led to an increase in both S-glutathionylated (GSH-3SH) and S-cysteinylated (Cys-3SH) precursors. The same trend of extraction was observed in Sauvignon blanc grapes, even if not statistically differentiated. In relation to 4-methyl-4-sulfanyl-pentan-2-one (4-MSP) precursors, the Cys-4MSP was the sole compound to be found, exclusively in Sauvignon blanc must. However, the enzyme treatment did not increase the concentration of this precursor. Grapes were pressed and racked after 24 hours of cold settling. For each variety, both musts were fermented in triplicate, in the presence and absence of a yeast autolysate. The nutrition management imparted significant differences between the volatile thiols in the final wines. The use of yeast autolysate increased the 3-SH content by ~25% and ~46%, in both Sauvignon blanc and Merlot wines, respectively. Moreover, the concentration of 4-MSP was four-fold higher in Sauvignon blanc wines supplemented with yeast nutrients. In Merlot wines 4-MSP was undetectable, result consistent with the absence of its precursors in the must of this variety.

Authors: Adelaide Gallo – Fondazione Edmund Mach—Technology Transfer Center, via Edmund Mach 1, 38010 San Michele all'Adige, Italy, Alice BARBERO- Fondazione Edmund Mach—Technology Transfer Center, via Edmund Mach 1, 38010 San Michele all'Adige, Italy Loris TONIDANDEL- Fondazione Edmund Mach—Technology Transfer Center, via Edmund Mach 1, 38010 San Michele all'Adige, Italy Rémi SCHNEIDER-Oenobrand SAS Parc Agropolis II-Bât 5 2196 Bd de la Lironde-CS 34603, CEDEX 05, 34397 Montpellier, France Roberto LARCHER- Fondazione Edmund Mach—Technology Transfer Center, via Edmund Mach 1, 38010 San Michele all'Adige, Italy Tomas ROMAN- Fondazione Edmund Mach—Technology Transfer Center, via Edmund Mach 1, 38010 San Michele all'Adige, Italy

Email: adelaide.gallo@unitn.it

Keywords: 3- sulfanylhexan-1-ol; 4-methyl-4-sulfanyl-pentan-2-on; thiol precursors; maceration; wine aroma; pectolytic enzymes; yeast nutrients

