Inactive yeast to preserve the aroma of young wines

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Researchers at UPM in collaboration with CSIC have proved that the usage of inactive yeast preparations rich in glutathione can preserve the aroma of young wines during their storage.

This new technique could be a more sustainable alternative than the traditional usage of sulfites to preserve the aroma of young wines during their storage. This statement is the result of a researcher group, from the School of Agricultural Engineers of Universidad Politécnica de Madrid, in collaboration with the Institute of Food Science Research (CIAL-CSIC), who found that the usage of natural additives based on inactive wine yeasts and rich in glutathione can reduce the oxidation process that is produced by the aroma loss of young wines.

The fresh, fruity and floral aroma of young wines (white and rosé) can quickly disappear during their storage because of the oxidation process. Additionally, young wines can change their color due to the formation of polymers producing orange and brown color tones. Apart from the loss of pleasant aromas, this process can produce unpleasant aromas similar to some aged wines.

From a technological point of view, an interesting solution to minimize this problem could be the usage of antioxidant compounds that delay the appearance of these types of reaction from deterioration. However, the most widespread oenological practice, the usage of chemical antioxidants (sulfites), can provoke adverse effects in some consumers sensitive to this compound. This is the reason why there is a tendency to reduce its usage in winemaking.

The usage of oenological additives is based on inactive yeast, which means non-viable yeasts and without fermentative capacity. This represents an interesting natural alternative that is currently having a great reception from all winemakers. However, the technological aptitude to preserve the aroma of young wines with this technique has not been proved so far.

Researchers from CIAL and UPM have conducted a research in collaboration with a winery of Navarra (Spain). There, researchers studied the effect of inactive yeast preparations rich in glutathione in the aroma of rosé wine of the Garnacha variety. Also, they studied the same wine elaborated with the traditional process.

This research had a UPM panel of twelve judges. They all were trained by the researchers of this study who conducted such study on the recognition of odors and flavors and the usage of intensity scales. These judges underwent a training evaluation. During the period of this research, the judges conducted sensorial tests. This consisted of

triangular tests that determine sensorial differences between the treated and the controlled wine during the lifetime of the wine (1, 2, 3 and 9 months). The wines were sensorially similar until the ninth month of storage.

In order to evaluate qualitative and quantitative differences, the specialized judges conducted a descriptive sensorial analysis where they assessed and scored the intensity of some of the most characteristic flavors of these wines (strawberry, peach, banana, floral, yeast) and flavor (acidity). As a result, they statistically proved that the wines with additives based on antioxidant inactive yeasts were more intense in fruit aromas (strawberry and banana) and less intense in aromatic notes more specific for oxidation (yeast).

These results indicate that the derivates based on inactive wine yeasts and rich in glutathione could be interesting additives to preserve the aroma of young wines during their storage. This finding is a sustainable alternative to reduce the content of sulfites in wines.

More information: ANDÚJAR-ORTIZ, I; CHAYA, C; MARTÍN-ÁLVAREZ, PJ; MORENO-ARRIBAS, MV; POZO-BAYÓN, MA. "Impact of using new commercial glutathione enriched inactive dry yeast oenological preparations on the aroma and sensory properties of wines". *International Journal of Food Properties,* 17 (5):987-1001; 10.1080/10942912.2012.685682, May 28 2014

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