



GLUTASTAR™

For use after pressing to protect against browning and aroma oxidation resulting in wines with more freshness and increased mouthfeel.

ORIGIN AND APPLICATION

GLUTASTAR™ is a new natural Specific Inactivated Yeast with guaranteed glutathione level, dedicated to the protection of white and rosé wines against oxidation.

Added to grapes or juice at the earliest stage in the winemaking process, before the fermentation, the unique properties of **GLUTASTAR™** confer to wine an efficient protection against browning and aroma oxidation, a better aromatic expression, freshness, and a longer preservation of thiols and esters. The addition of **GLUTASTAR™** contributes not only to enhance aromatic intensity and persistency as a result of the release of a high level of stabilizing peptides, but also to increase mouthfeel perception and wine viscosity due to the polysaccharides enrichment, both in white and rosé wines.

GLUTASTAR™ is the result of a research collaboration with the Institut Universitaire de la Vigne et du Vin de Dijon, France, that demonstrated its efficiency using a characterization via a metabolomic approach. The combination of the original yeast strain and the optimized production process ensures the ability of **GLUTASTAR™** to release the highest level of reduced glutathione and stabilizing peptides exhibiting a high free radical scavenging activity.



OENOLOGICAL PROPERTIES

- Highly recommended for Sauvignon blanc, Pinot Gris, Riesling
- High glutathione content protects against oxidation
- Contains the highest allowable GSH content by OIV specifications (OIV-OENO 603-2018)
- **GLUTASTAR™** contributes to better wine freshness and and increase in viscosity perception

• A very high free radical scavenging activity

Lallemand evaluated the radical scavenging activity of a Sauvignon blanc (2018 Val de Loire, France) produced under the same winemaking conditions with and without **GLUTASTAR™**. The results clearly show that the wine with **GLUTASTAR™** has the most effective activity, as shown in Figure 1.

Radical scavenging activity of Sauvignon blanc from Val de Loire (Vintage 2018)

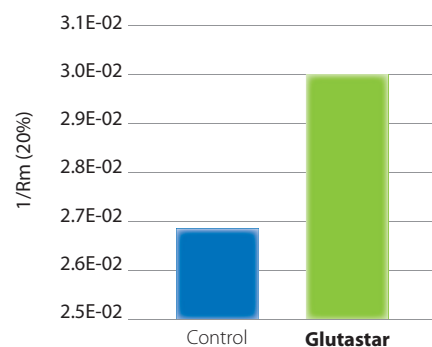


Figure 1: DPPH test analysis after bottling; a comparative trial in Sauvignon blanc (2018)



• A great impact on wine aroma

In a trial on a Sauvignon blanc (Loire, France 2018), we compared the aroma compounds concentration of a control wine and the same wine treated with **GLUTASTAR™** at 30 g/hL during the prefermentative maceration on solids (8 days at 4°C on solids then 24h of clarification at 12°C with enzyme). Figure 2 shows that the wine treated with **GLUTASTAR™** had a greater concentration of the 3-mercapto-hexanol (3MH) and its acetate (3MHA), and also of the 4-mercapto-4-methylpentan-2-one (4MMP).

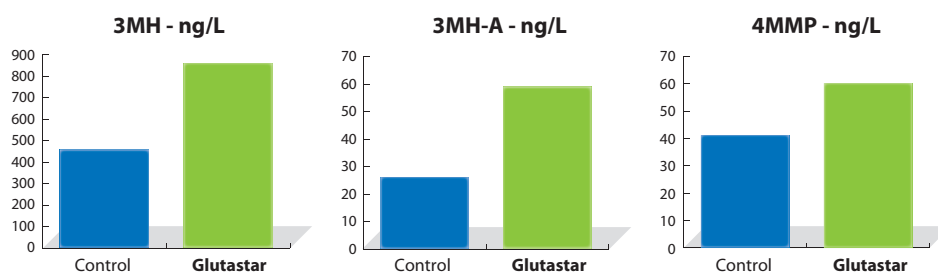


Figure 2: Comparative trial: Sauvignon blanc (Loire, 2018), analysis of volatile thiols at the end of AF

• The highest level of reduced glutathione

In a 2018 trial conducted on a Sauvignon blanc produced in the South-Western part of France, we compared a must in which we added 30g/hL of **GLUTASTAR™** just after pressing, with classical settling (24h clarification at 5°C) with a control wine. A very clear effect of **GLUTASTAR™** on the reduced glutathione level in the final wine was observed, as shown in Figure 3.

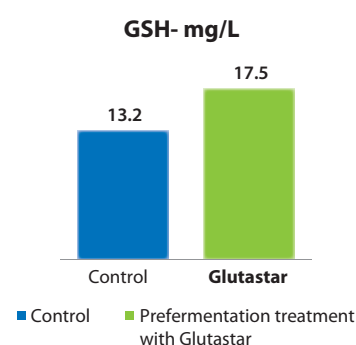


Figure 3: Comparative trial: Sauvignon blanc (2018), GSH content at the end of AF.

• Longer preservation of color and aromas over time in Rosé

A trial conducted in a Rosé de Provence (Syrah/Grenache, 2018) comparing the color and aromas preservation ability over time of a wine treated right after pressing with pea protein (30 g/hL), GSH inactivated yeast (30 g/hL), **GLUTASTAR™** (30 g/hL) and a control wine. Wine colour (CIELAB) was measured after bottling and clearly shows the efficiency of **GLUTASTAR™** to protect wine color from the very beginning of the winemaking process (Figure 4).

This study also showed a good impact on aromas after bottling, with better confectionery, yellow and red fruits and spicy aromas & less bitterness than in the other wines.

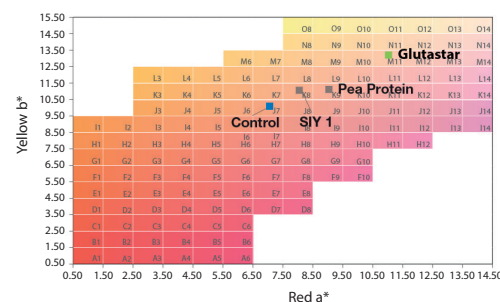


Figure 4: Managing color on Rosé de Provence (Syrah / Grenache) . CIELAB colour measurement after bottling.

INSTRUCTIONS FOR USE

- Recommended average dosage is 20 to 40 g/hL (200-400 ppm) depending on the benefits desired.
- Suspend **GLUTASTAR™** in ten times its weight of water or juice and mix.
- Add to the juice **at start of** fermentation.

GLUTASTAR™ is patent pending and was developed in collaboration with IUVV Dijon

PACKAGING AND STORAGE

- 1 kg sealed alu foil bags.
- Store in a dry environment below 25°C.

The information herein is true and accurate to the best of our knowledge; however, this data sheet is not to be considered as a guarantee, expressed or implied, or as a condition of sale of this product.