

Influencing tropical thiol concentration in white wine by combining foliar sprays and yeast selection

AWRI

Mark Solomon¹, Eleanor Bilogrevic¹, Leigh Francis¹, Josh Hixson¹

¹The Australian Wine Research Institute, PO Box 197, Glen Osmond (Adelaide) SA 5064, Australia

Corresponding author's email: mark.solomon@awri.com.au

BACKGROUND

- Foliar sprays containing sulfur and nitrogen applied to grapevines at veraison can increase the concentration of tropical thiols in wine
- When used on white grape varieties, the resulting wines are reminiscent of Sauvignon Blanc due to high concentrations of 3-sulfanylhexanol (3-SH) and 3-sulfanylhexyl acetate (3-SHA)

KNOWLEDGE GAP

- Can combining a vineyard spray application with fermentation using a high thiol-producing yeast strain produce high concentrations of tropical thiols in the resultant wine?

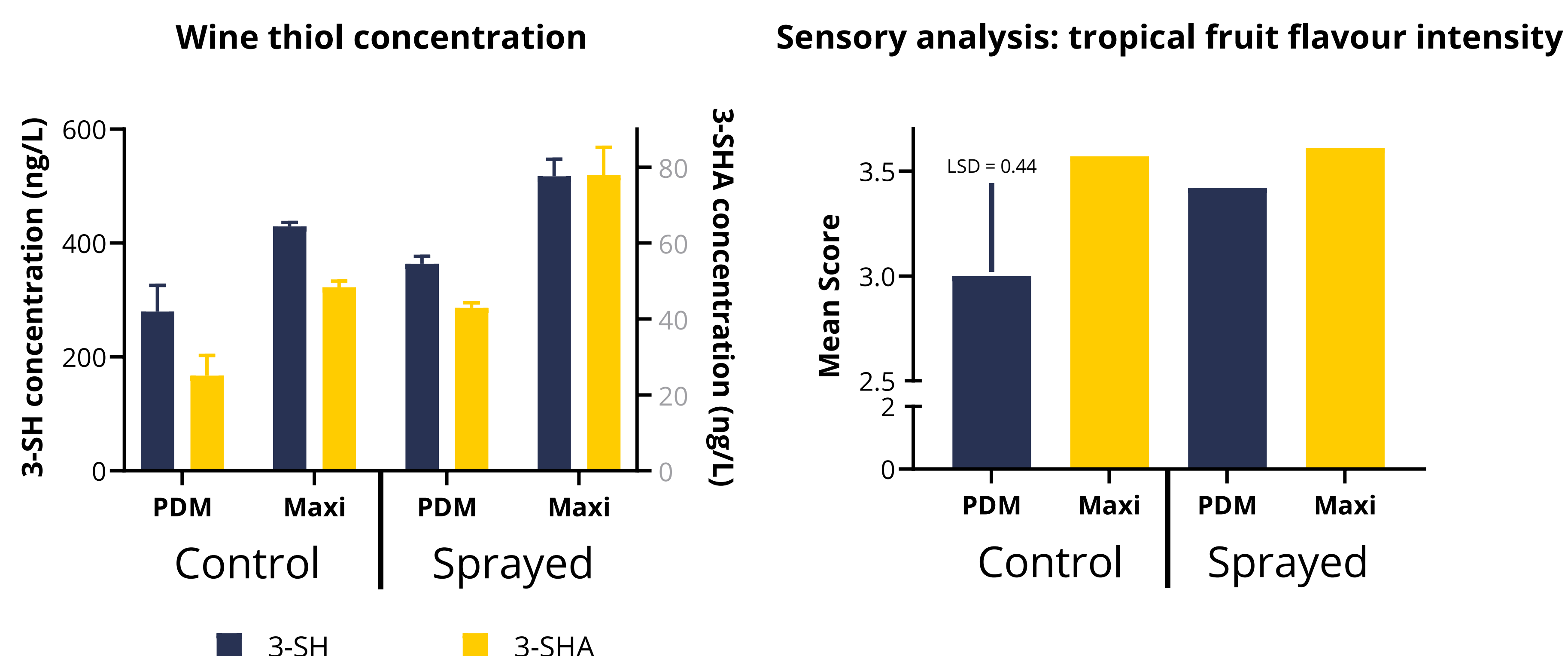
METHODS

- Spray trials were conducted at a commercial Adelaide Hills Chardonnay vineyard using the owner's own spray unit
- Foliar sulfur and nitrogen were applied twice during the 2021 vintage – once pre-veraison and once three weeks post-veraison
- In the winery, control and sprayed grapes were fermented in triplicate with a standard yeast strain (PDM) or a high thiol-producing strain (AB Mauri UOA MaxiThiol)



Crop spraying, by Science Photo Library, NTB scanpix. (<https://ndla.no/article/16103>). CC BY-NC-SA 4.0.

RESULTS



- The control grapes fermented with the high thiol-producing strain produced similar wine thiol concentration to the sprayed grapes fermented with either yeast strain
- The highest thiol concentration was from the sprayed grapes fermented with the high thiol-producing yeast strain
- Higher 'tropical fruit' flavour was seen in both wines made with sprayed grapes and wines made with high thiol-producing yeast strain; only a small extra flavour increase was seen with the combined treatment

CONCLUSIONS

- Using a sulfur and nitrogen foliar spray has a similar effect to fermentation with a high thiol-producing yeast strain for enhancing tropical thiols in white wine
- The greatest increase in tropical thiols was seen by combining the foliar spray and fermentation with the high thiol-producing yeast strain