

Understanding the chemical basis of jam character in red wine and grapes



Jana Hildebrandt^{1,2}, Miguel de Barros Lopes², Josh Hixson^{1,2}

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

² University of South Australia, School of Pharmacy and Medical Sciences, City East Campus, Adelaide, SA 5000, Australia

Corresponding author's email: jana.hildebrandt@awri.com.au

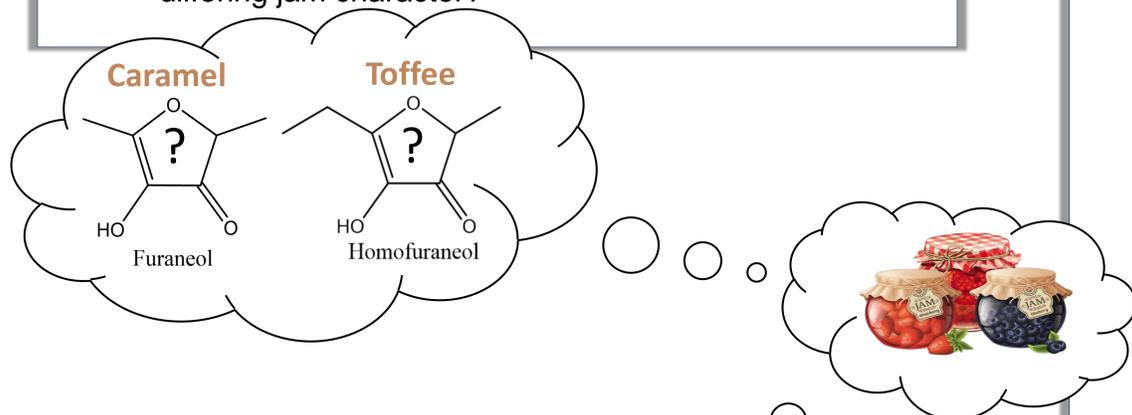


Background

Warm climates are often associated with 'jammy' wines. With growing temperatures expected to increase in many Australian wine regions (Hall and Jones 2009), the prevalence of 'jammy' wines is likely to increase.

Research questions

- How does bunch location on the vine affect grape temperature?
- What impact does bunch location and harvest timing have on jam character in grapes?
- Which compounds are modulated in grapes with differing jam character?

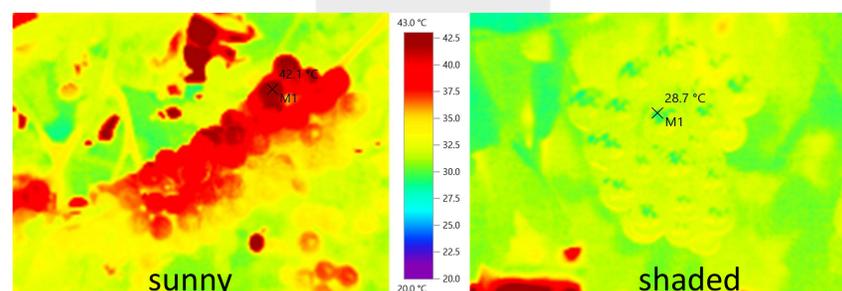


Conclusions

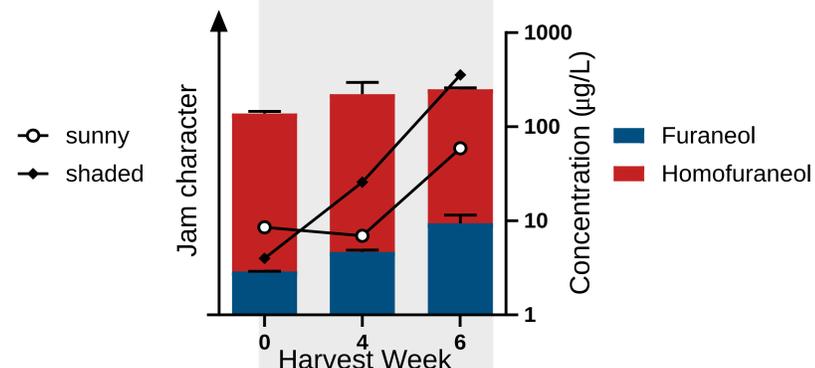
- I. Late harvesting increased jam aroma in Shiraz grapes.
- II. Furaneol and homofuraneol were identified as potential contributors.

Results

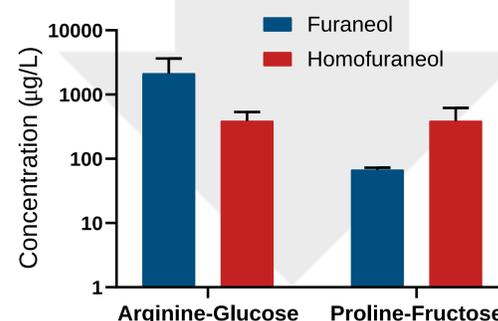
- Sun-exposed grapes experienced temperatures much higher than ambient recorded vineyard temperature (32.0 °C).



- Jam character in grapes increased with harvest delay irrespective of the side of the vine.
- GC-olfactometry identified furaneol and homofuraneol as potential contributors to jam aroma in grapes.
- Quantification of these compounds using GC-MS/MS showed increased concentrations, even after adjusting for grape dehydration in late harvested samples.



- In heated grape model systems, both compounds formed extensively through grape sugars reacting with specific amino acids.



- III. Increased concentrations of furaneol and homofuraneol in late harvest juice could not be combatted by accounting for grape dehydration.
- IV. Nitrogen fertilisation might be important in the formation of potential contributors to jam character, due to sugar and amino acid reactions under elevated temperatures.



The Australian Wine Research Institute

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Reference
Hall, A., Jones, G.V. 2009. Effect of potential atmospheric warming on temperature-based indices describing Australian winegrape growing conditions. *Aust. J. Grape Wine Res.* 15:97-119.

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