

The effect of dissolved carbon dioxide on the taste and texture of still wine



Richard Gawel¹, Alex Schulkin¹, Damian Espinase Nandorfy¹, Paul Smith^{1,2}, Jacqui McRae¹

¹ The Australian Wine Research Institute, PO Box 197, Glen Osmond (Adelaide) SA 5064, Australia, ² Wine Australia, PO Box 2733, Kent Town SA 5071

Corresponding author's email: richard.gawel@awri.com.au

Background and research question

Dissolved CO₂ (DCO₂) is a standard feature of all still wines. However, excessive or insufficient levels of DCO₂ can have significant stylistic and quality implications. Previous research on the sensory effects of DCO₂ has involved levels typical of sparkling beverages. **How does DCO₂ at concentrations typical of still white and red wines influence their taste and texture?**

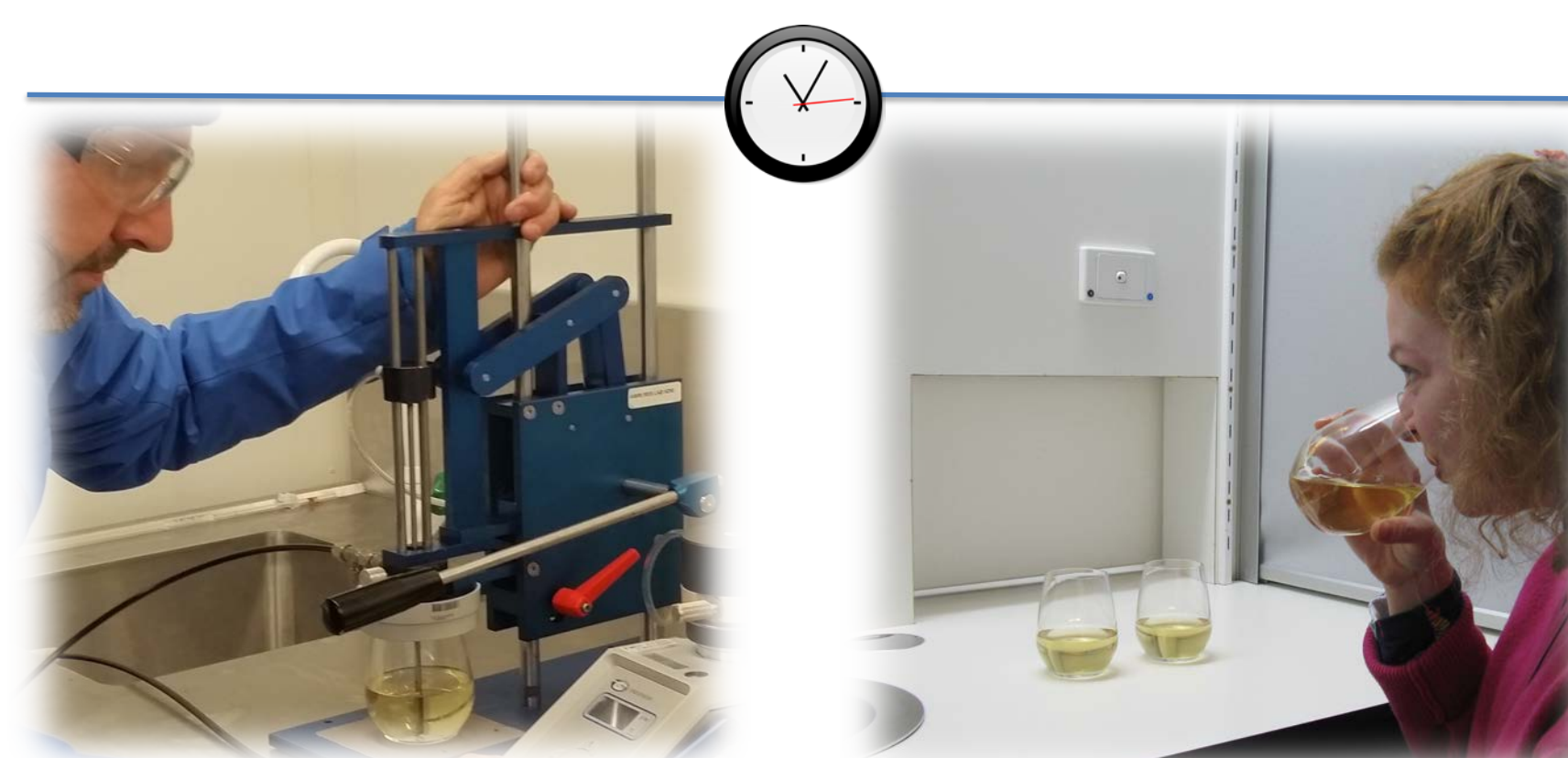
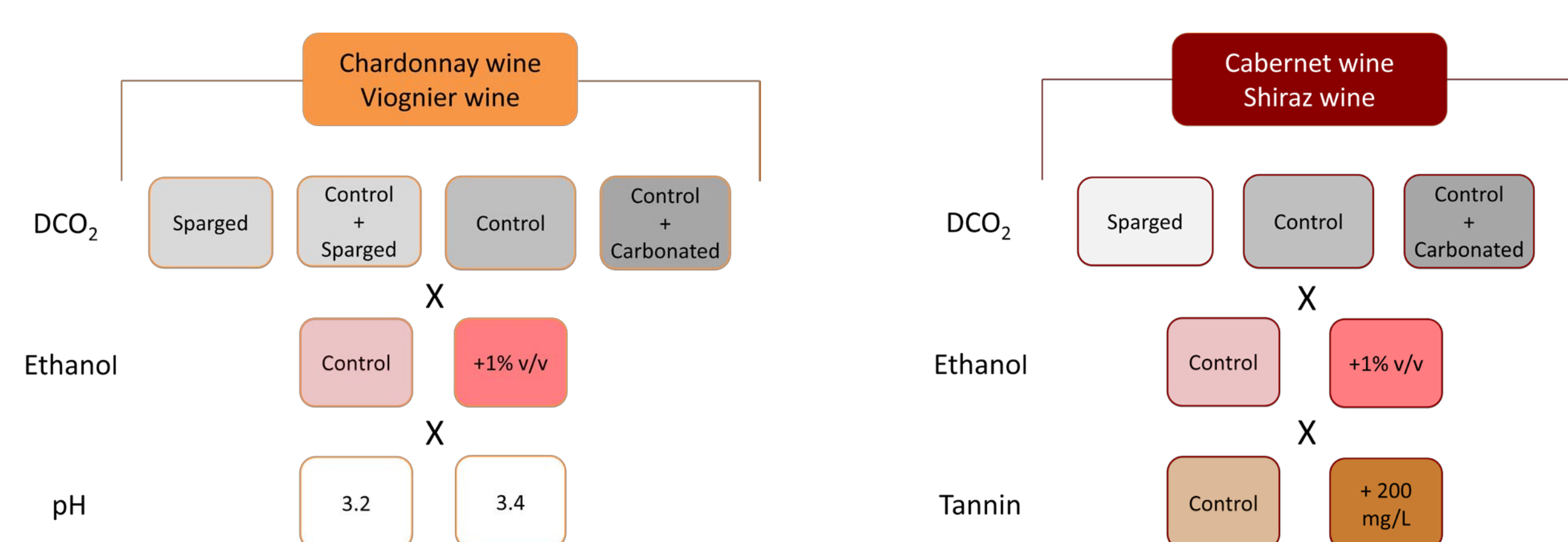
Methods

DCO₂ levels in four still wines were varied by blending N₂-sparged and carbonated versions of the same wine.

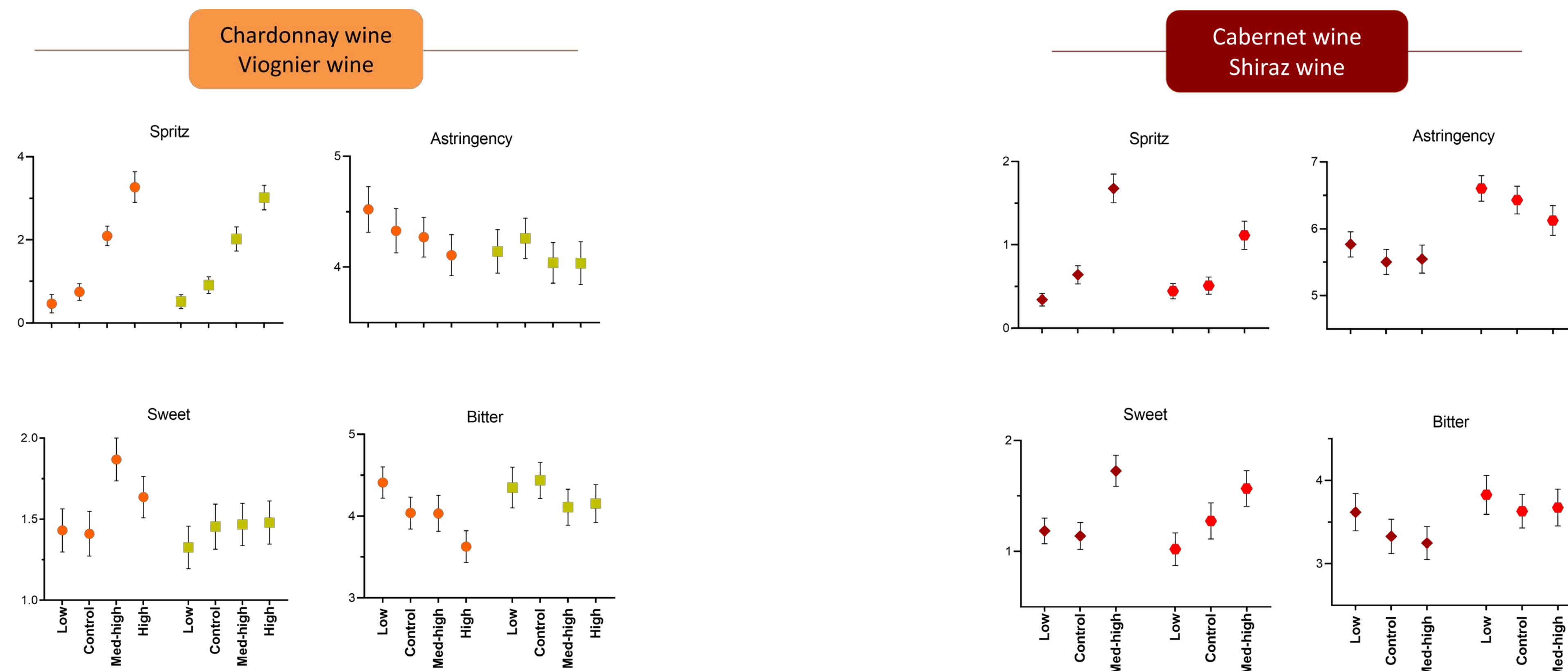
The wine matrices were further varied to assess sensory interactions of other components (ethanol, pH, tannin) with DCO₂.

The tastes, flavour intensity and textures of the wines were profiled by a trained sensory panel using standard descriptive analysis protocols.

Wine DCO₂ was measured in the glass at the time and place of tasting using a modified 'Orbisphere' system.



Results



Mean DCO₂ in glass at time of tasting (g/L)

	● Chardonnay	■ Viognier
Low	0.5	0.4
Control	1.1	0.9
Med-high	1.8	1.9
High	2.5	2.8

	◆ Shiraz	● Cabernet
Low	0.1	0.1
Control	0.6	0.4
Med-high	0.9	0.8

Summary

Higher DCO₂ in still wines with the same or similar pH consistently resulted in:

- ↑ sweetness ↓ bitterness ↓ astringency ↑ spritz
- no change in flavour intensity, perceived viscosity or hotness.

The impact of DCO₂ on the sensory properties of still wine was unaffected by pH, ethanol or tannin concentrations.



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