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

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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.