Dynamic characterization of wine astringency profiles using modified progressive profiling

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Background

Wine astringency is important for quality and consumer acceptance. Perception of this mouthfeel is dynamic and can be separated further into unique textural sub-qualities. Quantitative data on wine astringent sub-qualities however are lacking. Previous progressive profiling (PP) examined mouthfeel sub-qualities at a single time point; here we report a modified version which uses 10 sec time periods.

Aims

- Characterise the dynamic astringency profiles of Australian red wines using a modified PP method.
- Determine any correlations between mouthfeel attributes and chemical measures.

Materials and Methods

- Sensory assessment by modified PP (n=8):
  7 red wine astringency attributes were defined: overall astringent intensity (OAI) and 6 sub-qualities; pucker, mouth coat, dry, grippy, adhesive and graininess. 13 commercial red wine samples from 11 Australian wine regions covering 11 different grape varieties (including two blends) were evaluated in duplicate.

Results

- Modified progressive profiling

Fig. 1: Mean attribute intensities (± S.E.) as a function of time. Symbols *** denote for p<0.001.

2. Individual attributes at each time point were further analysed with univariate ANOVA and partial omega-squared (ω²) effect sizes were computed (Fig. 3).

Greatest discrimination of wine at each time interval differed by attribute. For e.g. in mouth, grippy had most impact, followed by mouth coat 20 sec after expectoration, then OAI, drying and then grippy at the final time period. Furthermore, the relative importance of each astringent sub-quality varied at different evaluation periods.

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