

A new approach for sensory characterization of grape. Relationship with chemical composition

AIM: Characterize taste and mouthfeel properties of grapes elicited by the phenolic fraction (PF) of grape berries and establish relationships with chemical variables. **METHODS:** As many as 31 diverse grape lots of Tempranillo Tinto and Garnacha Tinta from three different regions were harvested. Grapes were destemmed and macerated in 15% of ethanol for one week and extracts were submitted to solid phase extraction. The recovered polyphenolic fraction was reconstituted in wine model and characterized by a panel of 21 wine experts employing a list of 23 taste and mouthfeel-related attributes following a rate-k-attributes methodology. **RESULTS:** Six significant attributes among the 31 samples differed based on ANOVA results: “dry”, “coarse”, “bitter”, “dry on tongue”, “sticky” and “watery”. PCA with VARIMAX algorithm was calculated. Three main independent dimensions defining the sensory space of PFs were identified: D1, “dry on the tongue”; D2, “bitter/ sticky”; and D3: “coarse/dry”. Two out of the three dimensions could be satisfactorily modeled by PLS-regression from chemical parameters. Tannin activity and tannin concentration along with mDP of tannins proved to be good predictors of perceived dryness. Flavonols have a good prediction power for “bitter” attribute and the “sticky/bitter” dimension. In addition, the low molecular weight anthocyanins seem to be involved in the formation of the “dry” attribute, whereas large polymeric pigments in the “sticky” attribute and the “sticky/bitter” dimension. **CONCLUSIONS:** This study has increased our knowledge about some of the chemical drivers of grape sensory properties and presents a powerful tool for the wine industry to assess grape quality.

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