

## **Advantages and pitfalls of the Rate-All-That-Apply method to characterize large and heterogeneous wine samples**

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### **Abstract**

It is well known that descriptive sensory analysis is the most powerful tool to quantitatively profile products and obtain a complete sensory description. However, conventional descriptive sensory methods have the limitation of being able to describe a small number of similar samples and being time consuming and expensive.

The aim of this study was to investigate the suitability and reliability of the Rate-All-That-Apply method (RATA) to characterize a large and heterogeneous Italian wine samples involving a small number of semi-trained judges.

Twelve judges evaluated 46 samples including white, red, rosé, and sparkling wines in two replicates. Judges were asked to select from a list of descriptors all the sensations that described the samples and to evaluate their intensity on a 5-point scale.

Results showed that the panelists had an adequate performance as a whole and individually. Judges obtained high repeatability index scores (arbitrary cut-off > 0.50), meaning that they were consistent with the descriptors' selection in the replicates. Panel reliability was further assessed in terms of reproducibility of whole sensory characterization by evaluating the configurational similarity of product spaces obtained from the two separate replicates through a Multi Factor Analysis (MFA). This analysis showed that replicates of all wines were located near in the bidimensional space. MFA results also showed a good discriminatory ability of the method with red wines described by bitterness, astringency, body, alcohol, and specific olfactory stimuli such as red fruits, spicy and roasted, while white wines were salty, sour, and characterized by citrus, tropical fruits and white flowers odors.

The RATA method proved to be an adequate, alternative descriptive method for characterizing heterogeneous wines, making it extremely useful for producers and/or small companies to characterize their portfolio of wines. Advantages (user-friendly, rapid) and pitfalls (R.I. too optimistic with large descriptors list) of RATA method were highlighted.

### **Keywords**

Rapid descriptive method

RATA

Assessor reproducibility

Multi Factor Analysis

Wine quality