A methodological approach to simultaneously measure the relative sensory and information impact of alcohol reduction on the overall liking of wines in real life settings

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Global warming, viticulture progress and customer demand in aromatic wines have led to an international production of more and more alcoholized wines. Some alcohol-reduced wines are getting available on the market but studies regarding consequences of partial dealcoholisation on the sensory perception and acceptability by consumers are almost inexistent. This study aimed at simultaneously measuring the relative impact of partial alcohol reduction in wine on sensory appreciation and information perception by consumers in real life settings.

Several studies examined the relative impact of sensory properties and extrinsic cues as label, appearance, price on consumer response and emphasized a significant interaction between these two factors on overall liking. Measures used to take place in 3 steps: product evaluation in blind, evaluation of information alone and evaluation of product with information. This approach can be discussed as it is time costing and it involves subtracting hedonic scores obtained in 3 very different and moreover unrealistic conditions. This study proposed another approach by manipulating information in such a way that both parameters could be assessed in only one step, in the same conditions and in real life settings.

A Chardonnay and a Shiraz wine (13.5%) were partially dealcoholized using reverse osmosis technique up to 9.5%. To simultaneously measure sensory appreciation (in blind) and acceptability (with information) of reduced-alcohol wines, a specific approach was designed by varying wines in the bottle and information on the labels. For each grape variety, three bottled and labeled wines were prepared as indicated in figure 1. Comparison between wines A and B stands for the sensory hedonic effect as wines are different but information is the same and comparison between wines B and C stands for the information effect as wines in the bottles are the same but information is different.

**Figure 1.** Experimental design for the wines of the study

200 French consumers received and evaluated the bottles at home (one bottle a week) and 100 French consumers evaluated them at laboratory. Wine evaluations, consisting in hedonic ratings on continuous scale, took place in two parts. The first part consisted in a measure of consumer expectation without tasting, just based on the extrinsic characteristics of wine bottles and the second part consisted in a measure of consumer liking while tasting the wine from the labeled bottle.

A strong segmentation of consumers into two groups was emphasized for both grape varieties. Just based on extrinsic characteristics of wine bottles, the first group had a significant negative expectation towards alcohol reduced wines whereas the second group had no negative or positive expectation. After having tasted wines, consumers with negative expectation depreciated independently from the information the taste of dealcoholized wines and it was worsened when the information about alcohol reduction was given. The second group did not depreciate the sensory properties of the alcohol-reduced wine however they better liked it when the information about alcohol reduction was labeled.

This group, potentially interesting for the dealcoholized wine market, was significantly represented by a rather feminine population, having a weak knowledge and implication in wine.