P-163 CHARACTERIZATION OF VOLATILE AND SENSORY PROFILE OF CABERNET SAUVIGNON AND MERLOT WINES PRODUCED IN THE CAMPANHA GAÚCHA REGION

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Cabernet Sauvignon and Merlot wines are among the most consumed wines in the world. The Campanha Gaúcha region, located in the Southern state of Brazil, has excelled in the production of fine wines. The enological quality of a grape cultivar is primarily related to soil and climate conditions of the cultivation region, which include differences regarding soil, temperature, rainfall, solar radiation and relative humidity [1]. However, within a given region, the differences in enological quality among the vineyards are related to soil management and plant characteristics [2]. Thus, this study aims to characterize the volatile and sensory profile of the six Cabernet Sauvignon wines from different sub-regions of the Campanha Gaúcha and twenty Merlot wines, whose grapes were cultivated in the same vineyard, according to different agronomical conditions. The Merlot and Cabernet Sauvignon wines with better enological quality were indicated by quantitative descriptive analysis (QDA®) [3] and subsequently analyzed by comprehensive two-dimensional gas chromatography coupled to time-of-flight mass spectrometric detection (GCxGC/TOFMS) and gas chromatography-olfactometry Osme (GC-O) [4]. Different sensory profiles ($p \leq 0.05$) were observed for samples of Merlot (n=20) and Cabernet Sauvigon wines (n=6).

One Merlot and one Cabernet Sauvignon wines were selected by QDA obtained the highest intensity of notes in respect to smell-taste harmony, aroma intensity, aroma of red fruits and taste persistence. The use of GC-O allowed verifying that 2,3-butanediol, phenylethyl acetate, isoamyl acetate, ethyl hexanoate and ethyl decanoate were related to higher odoriferous impact. The Merlot wine showed 24 olfactory peaks in the aromagram and Cabernet presented 26, through GC-O analyses. Considering these odoriferous compounds, it is important to mention that phenylethyl acetate (aroma described as floral) co-eluted with β-damascenone (sweet/honey) in the first chromatographic dimension of GC-MS and was resolved in second dimension. Also 2,3-butanediol co-eluted with ethyl hydroxycaproate GC×GC/TOFMS has demonstrated that a correct and comprehensive identification of some important aroma compounds in complex mixtures requires the use of complementary analytical techniques, such as GC×GC/TOFMS itself and GC-O.

References:
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