BIO-SUSTENTABILIDADE E BIO-SEGURANÇA ALIMENTAR, INOVAÇÃO E QUALIDADE ALIMENTAR

23-26 de outubro de 2022

Castelo Branco

Sociedade Portuguesa de Química

Instituto Politécnico de Castelo Branco

Instituto Politécnico de Castelo Branco
Escola Superior Agrária

Câmara Municipal
Castelo Branco

EuChemS
European Chemical Society
Division of Food Chemistry

Livro de Resumos

XVI Encontro de Química dos Alimentos

Ficha Técnica

Título

Livro de Resumos do XVI Encontro de Química dos Alimentos - Bio-Sustentabilidade e Bio-Segurança Alimentar, Inovação e Qualidade Alimentar

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Esta publicação reúne os trabalhos apresentados no XVI Encontro de Química dos Alimentos: Bio-sustentabilidade e Bio-segurança alimentar, Inovação e qualidade alimentar, Castelo Branco 2022, e inclui ainda o programa científico do encontro.

As doutrinas expressas em cada um dos resumos são da inteira responsabilidade dos autores.

ISBN

978-989-8124-36-4

Data

Outubro de 2022

Sensory and chemical characteristic of white monovarietal wines produced from varieties more adapted to abiotic stress

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The search and study of varieties that are better adapted to climatic variations is one of the strategies to help the wine sector to overcome the challenges that will arise in the future. Within this framework and within the scope of the WineClimAdapt project (project code PDR2020-101-031010), the adaptability of around 100 white grape varieties was evaluated in the hottest and driest region of Portugal and the twenty five best suited varieties were used to produce monovarietal white wines. The vineyard (Herdade do Esporão, Alentejo, Portugal) was submitted to deficit irrigation (Water stress coefficient-Ks≈0.5) from pea size to maturation and grapes from 2021 harvest were vinified in the INIAV experimental cellar in duplicate and the wines produced were subjected to physical-chemical and sensory analysis.

The fifty wines were profiled by the tasters panel, based on the intensity evaluation of several sensory attributes (four visual; eight olfactory and five gustatory attributes), using a structured scale (0-no perception to 10-highest perception). The tasters were asked to rate also the overall quality of the wines, from 0 to 20. At the same time, the wines were analysed concerning their alcohol strength, fixed, total and volatile acidity, density, pH, reduced sugars and the absence of malolactic fermentation was confirmed.

The multidimensional analysis (Principal component analysis) of all the results shown a discrimination of the wine samples. The variables with major contribute for that separation were pH, acidity, odour attributes such as floral and fruity notes and some gustatory attributes (body and persistence). The results pointed out significant differences (from the ANOVA analysis) across the overall quality of the wines with higher significant values rated to the wines produced from Fernão Pires, Sarigo, Parellada, Riesling, Chenin, Dona Branca and Cercial grapes. Additionally, some of these white wines exhibited high values of acidity (**Figure 1**) which is very interesting for a hot grapevine region.

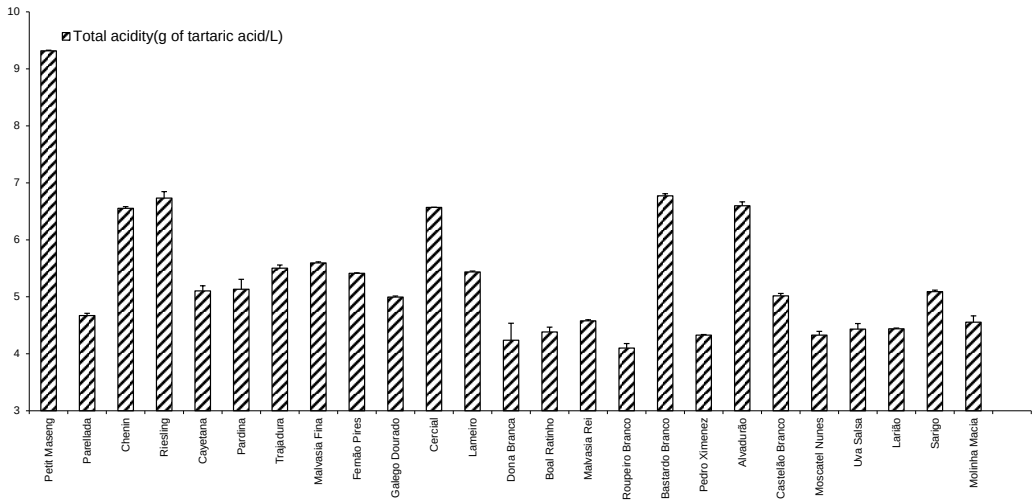

Figure 1. Average values and corresponding standard deviation for total acidity of the twenty-five monovarietal wines

Acknowledgements: The authors are very grateful to the sensory panel. The authors are also grateful to Amélia Soares and Deolinda Mota and for their technical support in physico–chemical and sensory analyses.

Funding: This work is funded by the Project WineClimAdapt [PDR2020-101-031010]. It was also supported by National Funds through FCT—Foundation for Science and Technology under the Projects UIDB/05183/2020 [MED] and UIDB/00239/2020 [CEF].