

Phenolic composition of white monovarietal wines from the Vinho Verde region

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Abstract

Monovarietal white wines produced in the demarcated Vinho Verde region are distinguished by their characteristic flavor and color, revealing the variety that gave rise to them. Thus, the aim of this study was to characterize the phenolic composition of white monovarietal wines obtained from Alvarinho, Arinto and Loureiro grape varieties, from different Vinho Verde sub-regions of 2014 vintage.

A nonparametric MANOVA was used to statistically analyze the results, for there was no assumptions of normality and homogeneity of variance-covariance matrices. To identify significant differences between samples, it was performed the Kruskal-Wallis test, followed by the multiple comparison of means of orders (SPSS *software* Statistics, version 22.0) considering a probability of error type I (α) of 0.05.

In the monovarietal Alvarinho wines studied, the color ranged from 0.066 - 0.091 u.a., the total phenolics compounds from 166-219 mg gallic acid/L, the flavonoids between 98-137 mg gallic acid/L and non-flavonoids between 61-83 mg gallic acid/L. In these wines, phenolic compounds, non-flavonoids and flavonoid, and also, phenolic acids, in particular the coumaric acid isomer and hydroxycinnamic acid as well as catechin, were significantly different between the wines analyzed.

Concerning the monovarietal Arinto wines, the color ranged from 0.051 - 0.148 u.a., total phenolics compounds from 148 - 228 mg gallic acid/L, flavonoids from 97-151 mg gallic acid/L and non-flavonoids between 51-77 mg gallic acid/L. However, in these wines there were not significant differences in the parameters evaluated.

In the monovarietal Loureiro wines, the color ranged from 0.070 - 0.084 u.a., total phenolics from 277 - 371 mg gallic acid/L, flavonoids between 143-201 mg gallic acid/L and non-flavonoids between 132-169 mg gallic acid/L. There were only significant differences in the content of phenolic acids (gallic acid and coumaric acid isomer) and catechin.

Keywords: Demarcated Vinho Verde region, white wines, Arinto, Alvarinho, Loureiro, phenolic compounds.