8th BALATON SYMPOSIUM

ON HIGH-PERFORMANCE SEPARATION METHODS

and 15th International Symposium on Separation Sciences

Book of Abstracts

Hungarian Society for Separation Sciences

P-112

HPLC-MS and Spectrophotometric Assay of the Phenolic Content of Macedonian Red and White Grape Varieties

Ivanova, V.[1,2*], Dörnyei, Á.[3], Kilár, F.[3,4], Márk, L.[5], Stefova, M.[2], Vojnoski, B.[1], Boros, B.[3], Stafilov, T.[2], Beleski, K.[1]

[1] Department for Enology, Institute of Agriculture, Sts Cyril and Methodius University, Skopje, R. Macedonia
[2]Institute of Chemistry, Faculty of Natural Sciences and Mathematics, Sts Cyril and Methodius University, Skopje, R. Macedonia
[3]Department of Analytical and Environmental Chemistry, Faculty of Sciences, University of Pécs, Ifjúság útja 6, H-7633, Pécs, Hungary
[4]Institute of Bioanalysis, Faculty of Medicine, University of Pécs, Szigeti út 12, H-7624 Pécs, Hungary
[5]Department of Biochemistry and Medical Chemistry, Faculty of Medicine, University of Pécs, Szigeti út 12, H-7624 Pécs, Hungary

Grape polyphenols are characterized by a large range of structures diversely distributed in every part of the berry. The knowledge of the phenolic composition of grapes and its evolution during ripening is thus of crucial importance in relation to food quality. Among the phenolic compounds, the anthocyanins are responsible for the red color of the grapes, which are located in the skins, while flavanols and catechins intervene in their taste (astringency) and bitterness. In this study, the contents of total phenolics, total flavan-3-ols and total anthocyanins were determined in the pulp, skins and seeds of two red, Vranec and Merlot, and two white grape varieties, Smederevka and Chardonnay applying standardized spectrophotometric methods. Extraction of phenolic compounds was performed with acetone/water (80/20, *v/v*). The obtained results showed that the concentration of total phenols and flavan-3-ols was highest in the skins and seeds of Vranec grapes, while the pulp contained low amounts of these compounds. Chardonnay seeds contained higher amounts of phenolics and flavan-3-ols compared to Smederevka grapes. HPLC-MS analysis was performed in order to identify the phenolic components present in the grape, applying mobile phase consisting of 1 % (*v/v*) acetic acid in water (solvent A) and 1 % (*v/v*) acetic acid in methanol (solvent B). The presence of 15 anthocyanins (monoglucosides, acetylglucosides and coumaroylglucosides), 7 flavonols, 5 phenolic acids and derivatives and 3 flavan-3-ols was confirmed in the skins of red grapes.

Acknowledgements
The work was supported by the CEEPUS CII-HU-0010-03-0809 Network scholarship and grants from the projects: CHROMLAB-ANTIOXIDANT (FP7), GVOP-3.2.1-0168, RET 008/2005 and OTKA-NKTHNI-68863.