



CEEPUS

**10th International Symposium and Summer School
on Bioanalysis**

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The aim of the Symposium and Summer School

The aim of this CEEPUS Symposium and Summer School is the presentation of new scientific research results in the field of bioanalysis to bring experienced and well known central European specialists together with young scientists and PhD students to promote their work. In addition to bioanalytical research other related key aspects will be discussed such as nanomaterials for chemical analysis and for new biotechnologies in medicine, further, computational quantumchemical approaches for determination and understanding of biological activities of some molecules are included as well.

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PHENOLIC COMPOSITION, COLOUR AND ANTIOXIDANT ACTIVITY OF VRANEC, MERLOT AND CABERNET SAUVIGNON WINES FROM R. MACEDONIA

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Wine quality largely depends on the phenolic compounds, which contribute to the wine colour, bitterness and astringency. Furthermore, phenolic compounds demonstrate the antioxidant potential of wines, which is mainly due to the flavonoids. In this study, phenolic composition, colour and antioxidant activity of *Vitis Vinifera* red wines Vranec, Merlot and Cabernet Sauvignon from three vintages, 2006, 2007 and 2008, produced in the Republic of Macedonia, have been evaluated. Separation of the individual antioxidant compounds, including monomeric anthocyanins, pyranoanthocyanins, flavonols, hydroxycinnamic acid derivatives and stilbenes has been performed using HPLC-DAD-ESI-MS/MS technique [1]. 1,1-diphenyl-2-picrylhydrazyl (DPPH) radical scavenging assay has been applied for the determination of the antioxidant activity of the wines and the wine colour was recorded using the CIELab uniform colour space. The major constituents belonging to the five different families found in the wines from all varieties were malvidin-3-glucoside, quercetin-3-glucuronide, *trans*-caftaric acid, resveratrol-3-glucoside and carboxy-pyrano-malvidin-3-glucoside (vitisin A). Comparing the wines from 2008 vintage, Vranec contained the highest amount of anthocyanins, pyranoanthocyanins, flavonols, hydroxycinnamic acid derivatives and stilbenes, followed by Merlot and Cabernet Sauvignon. A correlation of the antioxidant activity to each of the five groups of phenolic compounds was observed, confirming that the wine antioxidant potential is due to a complex mixture of phenolics.

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