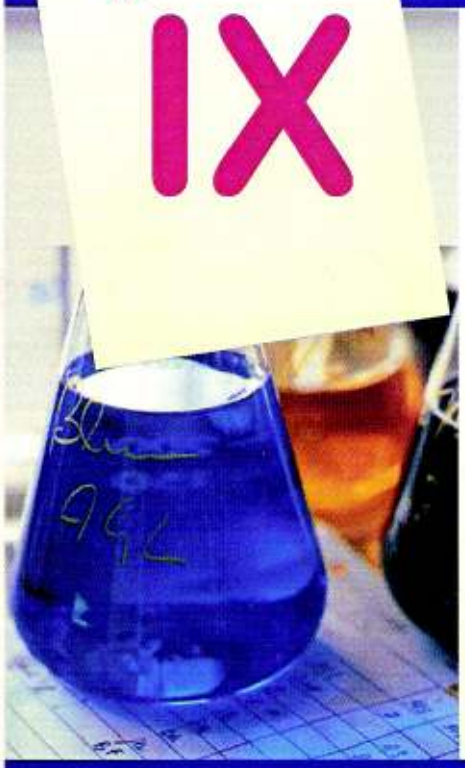
Сојуз на хемичари и технолози на Македонија

Society of Chemists and Technologists of Macedonia

# IX



*Конгрес по чиста и применета хемија на студентите од Р. Македонија*
(*со меѓународно учество*)

Congress of Pure and Applied Chemistry of Students from R. Macedonia
(with international participation)

# BOOK OF ABSTRACTS

**Место:**

**Институт за хемија, Природно-математички факултет, Скопје**

**Venue:**

**Institute of Chemistry, Faculty of Natural Science and Mathematics, Skopje**

06 – 08. 10. 2011, Скопје, Р. Македонија

# IX CONGRESS OF PURE AND APPLIED CHEMISTRY OF STUDENTS FROM REPUBLIC OF MACEDONIA

is organised by

**The Society of Chemists & Technologists of Macedonia,**

**Institute of Chemistry, Faculty of Natural Sciences and Mathematics, Skopje**

**and**

**Faculty of Technology and Metallurgy, Skopje**

**SCIENTIFIC COMMITTEE**

**PRESIDENT**

Vladimir Petruševski

**MEMBERS**

Marina Stefova
Valentin Mirčeski
Zagorka Koneska
Jane Bogdanov

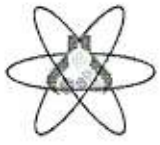
**ORGANIZING COMMITTEE**

**PRESIDENT**

Marina Stojanovska

**MEMBERS**

Olgica Trenčevska
Jasmina Tanatarec
Miha Bukleski
Jasmina Petreska
Ivana Micevka-Ristovska
Igor Mavromihailov
Birhan Sefer
Tomče Runčevski
Elena Tomovska

PL-3

# PHENOLIC COMPOSITION OF RED WINES FROM REPUBLIC OF MACEDONIA

Violeta Ivanova[1], Marina Stefova[2], Trajče Stafilov[2], Isidro Hermosin-Gutiérrez[3]

[1]Faculty of Agiculture, University "Goce Delčev" - Štip, Krste Misirkov, bb, 2000 Štip, Republic of Macedonia
[2]Institute of Chemistry, Faculty of Natural Sciences and Mathematics, "Cyril and Methodius" University - Skopje, Arhimedova 5, 1000 Skopje, Republic of Macedonia
[3]Instituto Regional de Investigación Científica Aplicada (IRICA), Escuela Universitaria de Ingeniería Técnica Agrícola, Universidad de Castilla-La Mancha, Ronda de Calatrava 7, 13071 Ciudad Real, Spain
e-mail: violeta.ivanova@ugd.edu.mk

Polyphenols are large and complex group of compounds which determine important characteristics, such as colour, mouthfeel, astringency and bitterness, of wine. Furthermore, they are the main responsible components for the differences between red and white wines, especially for the colour, taste, and mouth-feel sensations of red wines. Phenolic compounds are classified as flavonoids, including: anthocyanins; flavan-3-ols (monomers, olygomers and polymers), flavonols and dihydroflavonols, and non-flavonoids: hydroxybenzoic acids and derivatives; hydroxycimmanmic acids and derivatives; and stilbenes. Anthocyanins are the main pigments in red wines, responsible for their colour. Flavan-3-ols as monomers are bitter compounds and the oligomeric and polymeric flavan-3-ols contribute to wine astringency. Grape and red wine are the major dietary sources of stilbenes, considered as phytoalexins whose formation in grapes is correlated to disease resistance. Moreover, phenolic compounds in wine exhibit free radical scavenging activity, as well as, protective activity against arteriosclerosis and coronary heart disease.

Phenolic composition of *Vitis Vinifera* red wines Vranec, Merlot and Cabernet Sauvignon from the Tikveš region in Republic of Macedonia, has been studied using HPLC-DAD-MS and MS/MS techniques. Fifty-two phenolic compounds have been identified and quantified in the wine samples [1]. In all varieties, malvidin-3-glucoside and its derivatives were the major compounds. 10-carboxy-pyranomalvidin-3-glucoside (vitisin A) and 10-*p*-hydroxyphenyl-pyranomalvidin-3-glucoside were the main compounds from the family of vitisin-like and hydroxyphenyl-like pyranoanthocyanins, respectively. Vranec wine, which has intensive dark red and ruby colour, presented highest phenolics content having highest concentration of anthocyanins, vitisins, hydroxyphenyl-pyranoanthocyanins, flavonols, hydroxycinnamic acid derivatives and stilbenes in comparison to the other varieties studied, followed by Merlot and Cabernet Sauvignon [2,3].

**Key words**: Polyphenols, red wine, HPLC-DAD-MS.

[1] N. Castillo-Muñoz, M. Fernández-González, S. Gómez-Alonso, E. García-Romero, I. Hermosín-Gutié rrez, *J. Agric. Food Chem.* 57 (2009) 7883–7891.
[2] V. Ivanova, Doctoral Dissertation, UKIM, Faculty of Natural Sciences and Mathematics, Skopje, (2009).
[3] V. Ivanova, M. Stefova, F. Chinnici, *J. Serb. Chem. Soc.* 75(2010) 45-59