



Book of Abstracts

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“GLOBAL CHALLENGES THROUGH THE PRISM OF
RURAL DEVELOPMENT IN THE SECTOR OF
AGRICULTURE AND TOURISM”



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ElixirZorka



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WINE COMPOSITION AND QUALITY

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ABSTRACT

Wine is a very complex matrix consisting of variety of compounds, such as polyphenols, aroma compounds, organic acids, proteins, carbohydrates, biogenic amines, minerals etc. The wine quality depends mainly on grape variety, but also on temperature, soil, climate conditions and ripening stage. Also, wine-making practices such as intensity of pressing, fermentation temperature, maceration time, yeast strain, enzymes, SO₂ doses, storage temperature affect the wine composition and quality. Various analytical techniques have been used for determination of wine composition. Reversed phase high-performance liquid chromatography (RP-HPLC) is commonly employed for analysis of polyphenols, biogenic amines, organic acids, carbohydrates and other nonvolatile compounds, using mostly C18 column, and a binary solvent system with an polar acidified solvent, such as aqueous phosphoric acid or formic acid solution (solvent A) and organic modifier such as methanol or acetonitrile, possibly acidified (solvent B). Various detection systems have been coupled to HPLC, such as UV-Vis, DAD, MS and Q-TOF-MS detectors. Gas chromatography is the techniques for analysis of volatile compounds in wine, while multielement analysis is performed with atomic absorption spectroscopy (AAS), electrothermal atomic absorption spectroscopy (ETAAS), inductively coupled plasma - optical emission spectrometry (ICP-OES) and inductively coupled plasma - mass spectrometry (ICP-MS). This paper is focused on the chemical composition of wine and most important advanced instrumental techniques applied for wine analysis, including spectroscopic and chromatographic methods.

Keywords: wine quality, composition, analytical techniques.