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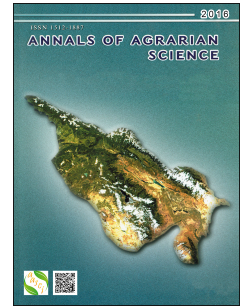
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Phenolic antioxidants in red dessert wine produced with innovative technology

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ABSTRACT

Phenolic compounds of red wines, catechins, flavonols, phenolcarbonic acids, anthocyanins, resveratrol are characterized by high antioxidant activity and sharply reduce the risk of numerous diseases. Nowadays an increasing demand on red wines in the world market is conditioned by their antioxidant effect. However, according to antioxidant activity those red wines are distinguished which are characterized with high content of phenolic compounds. Their concentration in wine depends on the vine growing place, grape cultivar, techniques of fermentative maceration. We have developed innovative technology for red dessert wine, with the aim of enrichment with antioxidant phenolic compounds. Object for the study: Control and test red dessert wine samples prepared from Saperavi grape cultivar. Control sample were prepared according to the existing technology; test – using maceration techniques in separately and combination, that are: saignée, dry fermentation of the pulp, fortification of the fermented pulp up to 16% (vol.) and staying for a week. By means of the HPLC analysis we determined the amount of phenolics. It has been observed that the concentration of phenolic antioxidants is most of all increased by in the test sample when combination use of maceration techniques: saignée and dry fermentation of the remaining pulp. In comparison with the control increases content phenolics: (–)-epicatechin, quercetin–3–glucoside and caffeic acid – 5–times; ellagic acid – 4–times; t-caftaric acid – 2– times; syringic acid – by 65%; (+)-catechin – by 40%.

Keywords: Wine, Catechins, Flavonols, Flavons, Phenolicacids, Antioxidants

1. INTRODUCTION

Phenolic compounds are one of the main characteristics of red wine. they take part in the formation of structure, color, transparency and stability of wine [1–3]. Phenolic compounds inhibit free radicals development, generated in a wide range in human body [3–5], significantly reduce cardiovascular disease [6–8], diabetes 2 [9, 10], various types of cancer [11, 12] and variety of other diseases development risk [13–16]. Phenolics in wines have attracted more interest from researchers in both food science and medicine. The intensive investigations of red wines in have started since 1991 when it became known about the „French Paradox“. According to this phenomenon, in France, where regular and moderate consumption of red wines is traditional, in spite of cholesterol-rich food intake, the percentage of cardiovascular diseases is low and the duratio of life is high. Regular and moderate consumers of red wines are at 20–30% less predisposed to the cardiovascular disease [16]. Among the phenolic compounds of red wines with high antioxidant activity, there are outlined: (+)-catechin, (–)-epicatechin, caffeic,

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