

**DIVERSITY OF CHEMICAL COMPOSITION AMONG SEED OILS OBTAINED FROM
DIFFERENT GRAPE VARIETIES**

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Wine industry generates enormous quantities of solid organic waste consisted of stems, skins and seeds. Grape seeds are considered the most valuable part of a pomace, since it is rich in oil and containing numerous bioactive compounds. Grape seed oil (GSO) composition depends mainly on grape variety, but also on environmental factors and maturation degree. The aim of this study was to investigate the diversity of chemical composition among seed oils obtained from different grape varieties. Eight varieties were collected from the same wine region and at the same maturity phase. Investigation of fatty acid composition was done using GC/FID, while HPLC/FD was employed for vitamin E analyses. Linoleic acid was the most abundant in all samples, followed by oleic acid. Saturated fatty acids, such as palmitic and stearic acid, were also present (up to 20 % of the total fatty acid methyl esters). Vitamin E concentrations were significantly affected by grape variety ($p < 0.01$). α -tocopherol was found in high concentration in all samples. GSO from Shiraz variety had about 25 mg α -tocopherol per kg of oil, while Gamay GSO contained more than six times less amounts of this vitamin E isoform. Sum of β and γ tocopherol also varied considerable, although Shiraz again stood out with the highest content. Finally, δ tocopherol was found in four varieties, in minor quantities. Generally, considering variety diversification on vitamin E composition of GSO, investigations that will include as much varieties as possible, are needed to single out ones with the highest bio-oil potential.

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RAZNOLIKOST HEMIJSKOG SASTAVA ULJA DOBIJENOG IZ SEMENKI RAZLIČITIH SORTI GROŽĐA

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Industrija vina ostavlja za sobom ogromne količine čvrstog organskog otpada koji se sastoji od peteljki, pokožice i semenki grožđa. Semenke se smatraju najvrednijim delom komine, jer su bogate uljem i sadrže brojna bioaktivna jedinjenja. Sastav ulja iz semenki grožđa zavisi pre svega od sorte vinove loze, ali i od faktora sredine i stepena zrelosti ploda. Cilj ovog rada bilo je ispitivanje raznolikosti hemijskog sastava ulja dobijenog iz semenki različitih sorti grožđa. U tu svrhu, prikupljeno je osam sorti u istoj fazi zrelosti i iz istog vinskog regiona. Ispitivanje sastava masnih kiselina vršeno je korišćenjem GC/FID, dok je HPLC/FD korišćen za analizu koncentracije vitamina E. Linolna kiselina je bila najzastupljenija u svim uzorcima, zatim oleinska kiselina. Zasićene masne kiseline, kao što su palmitinska i stearinska kiselina, takođe su bile prisutne (do 20 % od ukupnih metil estara masnih kiselina). Sorta vinove loze je značajno uticala na sadržaj vitamina E ($p < 0,01$). α -tokoferol je pronađen u visokim koncentracijama u svim uzorcima. Ulje iz semenki sorte Širaz sadržalo je oko 25 miligrama α -tokoferola po kilogramu, dok je u ulju sorte Game kvantifikovana šest puta manja koncentracija ove izoforme vitamina E. Zbir β i γ tokoferola takođe je značajno varirao, iako se Širaz ponovo istakao sa najvećim sadržajem. δ tokoferol je pronađen u ulju četiri sorte, u manjim količinama. Generalno, s obzirom na raznovrsnost sastava vitamina E u ulju iz semenki grožđa, potrebna su opsežnija istraživanja koja će obuhvatiti veći broj sorti vinove loze kako bi se izdvojile one sa najvećim potencijalom bio-ulja.

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