PHYSICO-CHEMICAL AND SENSORY ANALYSIS OF THE PRODUCT MADŽUN (GRAPE MOLASSES) FROM GRAPE VARIETIES GROWN UNDER THE CONDITIONS OF R. NORTH MACEDONIA

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In this study, the physico-chemical and sensory properties of samples of the product Madžun (grape molasses) produced according to the traditional method from five different grape varieties (Cardinal, Vranec, Afus ali, Stanushina, Smederevka) grown under the soil and climatic conditions of the Tikvesh wine-growing region were investigated. The water-soluble dry matter, pH, titratable acidity and hydroxymethylfurfural (HMF) content of the samples were determined to be 61.67-84.98%, 3.11-4.47, 3.8-11.1 g/L and 620.30-875.30 mg/kg, respectively. The mean fructose and glucose content of the samples was 39.64% and 40.86%, respectively. The sucrose content was at the detection limit (<0.1 %) in all samples. This indicates that no sugar was added during the production of grape molasses (Madžun). Total phenolic content (TPC) was determined and significant differences were found between the samples ($P<0.01$). The sensory analysis of the samples was performed by 7 trained evaluators. All members were women with experience in sensory evaluation of plant-based foods.

The following elements were evaluated: color, odor, taste, sweetness, acidity, texture and aftertaste. The maximum score could be 20 (ISO 6564, ISO 8587 and ISO 11036). Based on the results of the sensory evaluation, it was concluded that the Madžun (grape molasses) sample from the Vranec grape variety achieved the highest score of 17.92 points.

***Keywords*:** Madžun, grape varieties, hydroxymethyl furfural, sucrose, TPC, sensory analysis

FIZIČKO-HEMIJSKA I SENZORSKA ANALIZA PROIZVODA MADŽUN (MELASA GROŽĐA) OD SORTI GROŽĐA GAJENIH U USLOVIMA REPUBLIKE SEVERNE MAKEDONIJE

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U ovom istraživanju ispitivana su fizičko-hemijska i senzorska svojstva uzoraka proizvoda Madžun (grožđana melasa) proizvedenih tradicionalnom metodom od pet sorti grožđa (Kardinal, Vranac, Afus ali, Stanušina i Smederevka) uzgajanih u zemljišno-klimatskim uslovima Tikveškog vinogorja. Određeni su sadržaj rastvoljive suve materije, pH, titraciona kiselost i sadržaj hidroksimetilfurfurala (HMF) i dobijeni su rezultati 61,67-84,98%, 3,11-4,47, 3,8-11,1 g/L i 620,30-875,30 mg/kg, redom. Utvrđeno je da je prosečan sadržaj fruktoze i glukoze u ispitivanim uzorcima bio 39,64%, odnosno 40,86%. Sadržaj saharoze u svim uzorcima bio je na pragu detekcije (<0,1%), što ukazuje da nije dodat šećer prilikom proizvodnje grožđane melase (Madžun). Određen je ukupan sadržaj fenola (TPC) i utvrđene su značajne razlike između uzoraka ((P<0,01). Senzorsku analizu izvršilo je 7 treniranih ocenjivača. Sve članice su bile žene sa iskustvom u senzorskom ocenjivanju biljne hrane. Ocenjivani su sledeći elementi: boja, miris, ukus, slatkoća, kiselost, tekstura i aftertejst. Maksimalni broj poena mogao je da bude 20 ((ISO 6564, ISO 8587 i ISO 11036). Na osnovu senzorske analize zaključeno je da je najbolji uzorak Madžuna (grožđane melase) bio od sorte grožđa Vranac sa najvećim brojem poena 17,92.

Ključne reči: Madžun, sorte grožđa, hidroksimetil furfural, saharoza, ukupni fenoli, senzorska analiza