



Determination of Some Heavy Metals in the Soil, Grape and Wine of the Grape Vineyards of Rahovec

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Abstract: The aim of this research was to determine the concentration of Pb, Cd, Zn, Cu, and Mn in soil samples of vineyards in Rahovec and grape-wine fruit. Soil and fruit samples were taken at three locations, at a distance of 5 to 50 m away from the roadway. Similar analysis were made on random samples of white wine (Riesling Italian, 2008) and red-black (Vranac - 2006) from winery "Bodrumi i Vjeter" in Rahovec. Measurement of the heavy metals concentration in soil samples was done by ICP-OES Spectrophotometers, while in the fruit and wines by Flame Atomic Absorption Spectrometry - type Parkin Elmer AAS 6000. Highest concentrations of Pb (24.3216 ppm) and Zn (62.943 ppm), were found near the roadway while the concentration of Cu (98.296ppm), Mn (777.66ppm) and Cd (1.0431) 50 m away. In soil samples higher concentration showed Mn, and lower for Cd. In fruits, highest concentration of metals is found in checkpoint 'c' in the order: Zn > Mn > Pb > Fe > Cu > Cd. In white wine the highest concentration showed Zn (0.62ppm), and in red-black wine Cu (0.238ppm) and Mn (2.12ppm). The concentration of Pb (0.048) and Cd (0.014) in white and red-black wine is the same. The results of the research showed that concentration of Cu and Mn in soil samples is 2 to 4 times higher than the recommended values of ISO/WHO/EPA, while the concentration of metals in wine is within the range of certified values with the exception of Cd. Statistical results were calculated by MINITAB software.

Key words: *Heavy metals, wine, soil, wine, ICP, AAS*

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