Chemical characterization of white and red wines from Ovche Pole region

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This study was focused on the evaluation of white wines (Zilavka and Smederevka) and red wine (Vranec), all produced wines from grapes grown in the Ovche Pole wine region, Republic of N. Macedonia. All wines were from vintage 2024 and produced using traditional methods. Chemical analyses were performed using fourier transform infrared (FT-IR) spectroscopy in order to determine the following basic parameters: alcohol, density, reducing sugars, pH, total acidity, volatile acidity, free and total SO_2. The results indicated that the wines were of high quality, containing a relatively high content of alcohol, ranging from 11.5 to 15.16 % (*v/v*). The pH ranged from 3.3 to 3.7, while total acidity was between 6.1 to 7.1 g/L and volatile acidity ranged from 0.34 to 0.48 g/L, indicating that all wines were chemically and microbiologically stable. In addition, the wines were well-protected from oxidation, with sufficient dose of free SO_2 (on average: 8.28 mg/L) and total SO_2 (on average: 21.07 mg/L). The concentration of individual organic acids were also determined in all wines, in which tartaric acid was the dominant compound (average value: 2.92 g/L), followed by malic acid (average value: 0.69 g/L), lactic acid (average value: 0.52 g/L) and citric acid (average value: 0.31 g/L). Furthermore, the Folin-Ciocalteau (FC) and color parameters have been determined for the Vranec wine. Red color dominated (range: 51.44 to 55.17%), followed by yellow (range: 32.96 to 34.06 %) and blue (range: 11.8 to 14.51%). Overall, all wines presented very good physical, chemical and microbiological stability, characteristic for high quality white and red wines.

Keywords: wine, FT-IR, Zilvanka, Smederevka, Vranec