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The taste of soil: chemical investigation of soil, grape and wine in the Sopron wine region (Hungary)

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The Sopron wine region is one of the most significant and historical wine-producing regions of Hungary. 1800 hectares out of the total area of 4300 hectares of the wine region are used for grape cultivation. Kékfrankos (Blue Frankish) is the most frequent grape variety (60%) nevertheless other varieties are also grown here (including Zweigelt, Merlot, Cabernet Franc, Portugieser and Sauvignon Blanc). In this study preliminary results of the chemical analyses involving soil, grape and wine are presented, which could provide a future basis for a comprehensive terroir research in the wine region.
As soil is the premanent home of grapevine, its quality is highly influencing for the growth of the plants and grape berries, and also determines future organoleptic characteristics of the wines. The investigated basic soil parameters included humus content, transition, soil structure, compactness, roots, skeletal percent, color, physical assortment, concretion, soil defects. Laboratory measurements involved the determination of pH, carbonated lime content, humus content, ammonium lactate-acetic acid soluble P and K content, KCl soluble Ca and Mg content, EDTA and DTPA soluble Cu, Fe, Mn and Zn content. Soil samples were also investigated for heavy metal contents using ICP-OES method (Thermo Scientific iCAP 7000 Series). By the use of thermoanalytical measurements (Mettler Toledo TGA/DSC 1 type thermogravimeter, 5°C/min, air atmosphere, 25–1000°C) the mineral composition of the soils was evaluated.
Regarding major aroma compounds in grape berries and wine, the concentrations of organic acids (tartaric-, acetic-, succinic-, malic-, lactic acid), methanol, ethanol, glycerine, glucose and fructose were determined by high performance liquid chromatography (Shimadzu LC-20 HPLC equipment with DAD and RID detection). The density, titratable acidity, pH and total extractive content of the wine samples was also determined.
With the presentation of the results the possible relationships between individual parameters will be demonstrated.
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