



Research article

THE IMPACT OF TYPE OF GRAPE VARIETY ON THE VOLATILE AROMA COMPOUNDS AND SENSORY PROPERTIES OF GRAPE BRANDY IN SOUTH-WEST OF ROMANIA

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Abstract

This paper presents the results of a study that examined the impact of grape variety on the aromatic profile and sensory characteristics of distilled beverages produced in the Southwest of Oltenia, Romania, and Podgorica (Montenegro). Six grape varieties were used: neutral (Fetească Regală and Fetească Albă), semi-aromatic (Sauvignon), and aromatic (Tămâioasă Românească, Muscat Ottonel, and Muscat of Alexandria). The pomace brandies were obtained by distilling the grape pomace from the mentioned varieties using a traditional copper still, under identical conditions.

The gas chromatography–mass spectrometry (GC/MS) method was applied to identify 30 aromatic volatile compounds belonging to the groups of alcohols, volatile acids, volatile esters, terpenes, and volatile aldehydes. Sensory evaluation of the distillates was also carried out to determine the typical characteristics of the analyzed brandies.

Alcohol content, fatty acid esters, and terpenic compounds were significantly higher in all brandies obtained from aromatic grape varieties compared to those from neutral or semi-aromatic varieties. A higher average content of 2-phenylethanol was detected in aromatic brandy samples (mg/L in TR) compared to all other brandies. In neutral/semi-aromatic grape brandies, the highest value was found in FR (6.23 mg/L). The linalool content, which contributes significantly to the aroma of roses, anise seeds, grapefruit, lime, and citrus, is significantly higher in aromatic brandies (0.68 mg/L - TR and 1.15 mg/L - MO) compared to brandies from neutral/semi-aromatic varieties (0.25 mg/L - FR and 0.34 mg/L - S). The research results showed that the grape variety had a significant impact on the aromatic volatile compounds and the sensory properties of the brandy. Sensory analysis supports the chemical determinations, showing that all brandies fall into the category of high-quality spirits.