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PHYSICOCHEMICAL AND ORGANOLEPTIC CHARACTERIZATION OF ORGANIC WINES FROM VRANCEA COUNTY, ROMANIA

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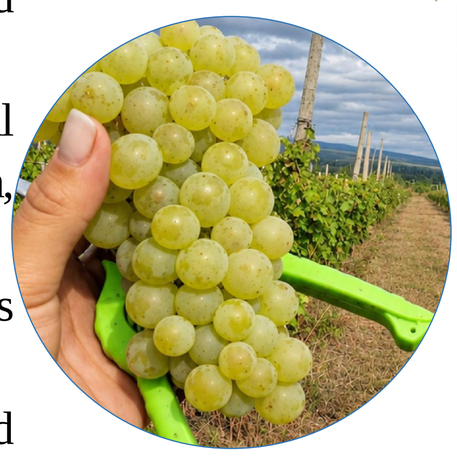
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Abstract

This study evaluates the physicochemical and organoleptic characteristics of organic wines from Vrancea County, Romania. Key parameters (total acidity, alcoholic strength, volatile acidity, sulfur dioxide, non-reducing dry extract, reducing sugars, and relative density) were analyzed and compared with regulatory requirements and literature data. The results show differences among the three wine samples, highlighting the influence of grape variety on wine composition and sensory profile.

Introduction

- Wine quality is determined by physicochemical composition and organoleptic characteristics.
- Organic viticulture supports soil conservation, biodiversity protection, and reduced environmental impact
- Vrancea County is one of Romania's representative wine-growing areas.
- The study aims to characterize selected organic wines from the region.



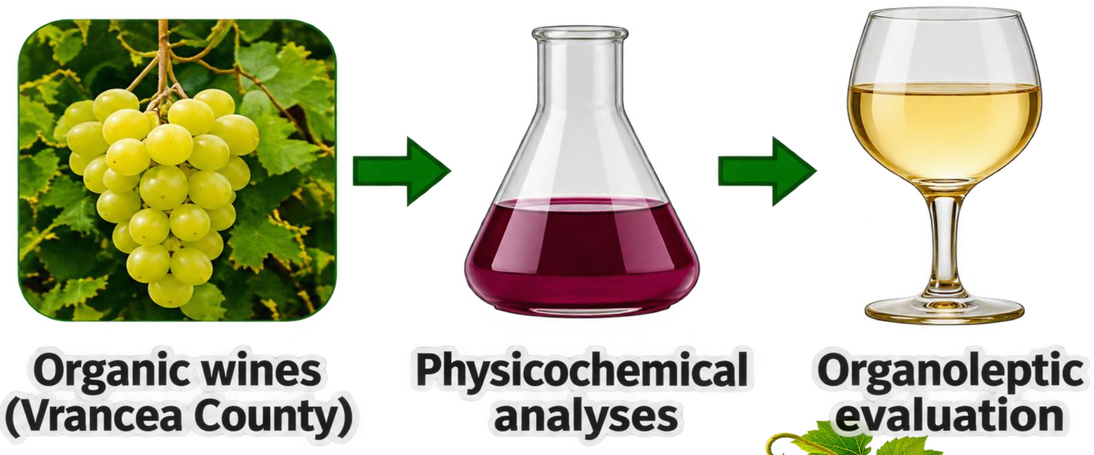
Material and method

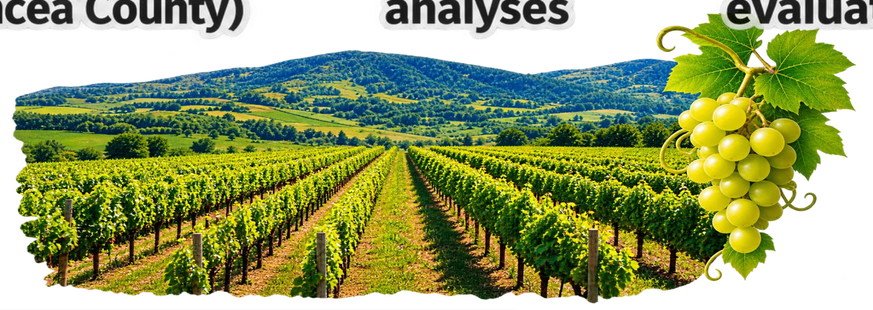
Samples: three organic white wines from the 2025 vintage: Fetească Regală, Șarbă, and Sauvignon Blanc.

Laboratory analyses performed in February 2026.

Parameters evaluated: alcohol content, total acidity, volatile acidity, free and total SO_2, non-reducing dry extract, reducing sugars, and relative density at 20°C.

Organoleptic characteristics assessed descriptively: appearance, color, and aroma.

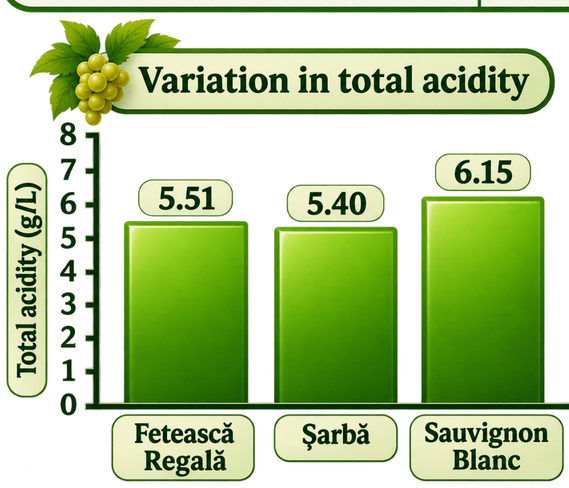


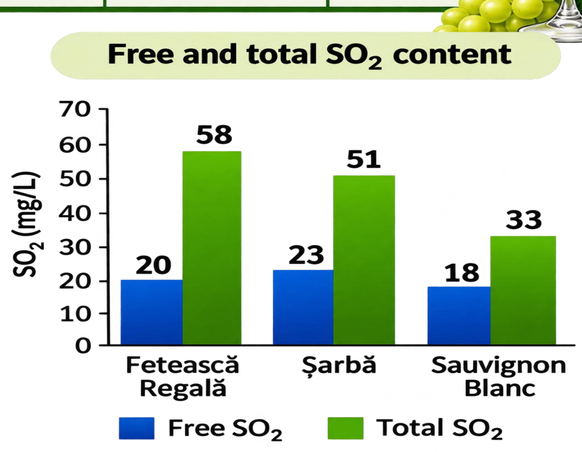


Results and discussions

Physicochemical characteristics of the analyzed organic wines

Parameter	Fetească Regală	Sarba	Sauvignon Blanc
Alcohol content (% vol.)	13.5	13.2	12.9
Total acidity (g/L)	5.51	5.40	6.15
Volatile acidity (g/L)	0.30	0.27	0.36
Free SO_2 (mg/L)	20	23	18
Total SO_2 (mg/L)	58	51	33
Non-reducing dry extract (g/L)	19.2	19.0	19.0
Reducing sugars (g/L)	4.0	1.7	6.4
Relative density at 20°C	0.9928	0.9910	0.9936





Organoleptic characteristics

- **Appearance:** clear
- **Color:** yellowish-white
- **Aroma:** characteristic

These descriptors were common to all three analyzed samples.

Key findings

- **13.5% vol.** — Highest alcohol in Fetească Regală.
- **6.15 g/L** — Highest total acidity in Sauvignon Blanc.
- **33–58 mg/L** — Total SO_2 ranged 33–58 mg/L and remained below applicable limits.
- **6.4 g/L** — Highest reducing sugars in Sauvignon Blanc.

Conclusion

- Integrating physicochemical and organoleptic analyses is essential for assessing organic wine quality.
- The differences observed highlight wine compositional diversity, without confirming varietal influence.
- The findings provide preliminary insights into organic wine quality in Vrancea County.
- Further research should include more samples, multiple vintages, and detailed sensory analyses.

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