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WAC 2026

**In Vino
Analytica
Scientia**

Dijon 2026

*Analytical Chemistry for Wine,
Brandy and Spirits*

29 June – 3 July 2026 • Dijon (France)

Book of Abstracts



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This book of abstracts comes from a collaboration between the 14th edition of the In Vino Analytica Scientia and 6th edition of the Wine Active Compounds, held in Dijon, France, from 29 June to 3 July 2027 and the International Viticulture and Enology Society. The book is available online with open access on the *IVES Conference Series* platform.



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DOI:

10.58233/wac-ivas-2026

e-ISSN of *IVES Conference Series*:

2777-9173

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WAC–IVAS 2026

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POSTER – P113

Selection of *Saccharomyces cerevisiae* strains for traditional Sicilian sparkling wines: effects on secondary fermentation kinetics and sensory profile

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Keywords: traditional sparkling wine, traditional method, secondary fermentation, *Saccharomyces cerevisiae*, yeast strain selection, fermentation kinetics, sensory analysis

ABSTRACT

Sparkling wine is defined as a wine containing carbon dioxide in solution, produced exclusively through a secondary fermentation process. According to European EC Regulation No. 1308/2013, sparkling wines must exhibit a natural pressure of at least 3 bar at 20 °C. The objective of this thesis was to select and evaluate *Saccharomyces cerevisiae* yeast strains suitable for the production of Sicilian sparkling wines using the traditional or “Champenoise” method. This work classifies sparkling wines based on internal pressure, sweetness level, and production method. Secondary fermentation was carried out in 14 experimental trials at a constant temperature of 15 °C. Fermentation kinetics were monitored using an afrometer (Tecnobolle group srl), which recorded pressure increase inside the bottles. Pressure values were measured at multiple time points (0, 7, 15, 30, 60, 90, 180, and 270 days), then standardized to 15 °C using Henry’s law constant (Henry, 1803). Results were expressed as pressure (bar) at 15 °C. The sensory analysis of the experimental sparkling wines aimed to identify organoleptic differences among the samples. Tasting was conducted under

controlled conditions using ISO-standard glasses, with 50 mL aliquots served at 6–8 °C. The judges assessed the intensity of eighteen sensory attributes covering visual, olfactory, and gustatory perception, enabling the definition of detailed organoleptic profiles for each wine. Six experimental trials showed optimal secondary fermentation kinetics, comparable to the two controls used. Sensory evaluations confirmed the significant role of yeast strain selection in shaping the overall quality of traditional-method sparkling wines. Three trials stood out for their superior perlage quality, visual brilliance, and aromatic intensity, and were therefore identified as the most promising candidates for high-quality sparkling wine production. All fermented samples were free from organoleptic defects and exhibited a richer and more complex sensory profile than the base wine. Overall, the findings demonstrate that the targeted selection of *Saccharomyces cerevisiae* strains is a key element in modulating the kinetics of secondary fermentation and optimizing the sensory profile of sparkling wines produced with the traditional method.

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