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Wine Active Compounds - In Vino Analytica Scientia

## BOOK OF ABSTRACTS

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## P045 — Poster

# Modulation of the aromatic and polysaccharide composition of white wines by varying the Kluyveromyces marxianus / Saccharomyces cerevisiae co-inoculation ratio

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In recent years, interest in non-Saccharomyces (NS) yeasts has grown significantly due to their distinctive metabolic characteristics and their impact on the sensory properties of wines. Driven by this, the present study investigated the influence of the Km L2009 Kluyveromyces marxianus strain on the volatile composition and polysaccharide profile of wines co-fermented with Saccharomyces cerevisiae. A Gewürztraminer must was inoculated with $2 \times 10^6$ CFU/mL, testing five different cell ratios of K. marxianus and a commercial S. cerevisiae: 80%, 90%, 95%, 99%, 99.9%. A pure S. cerevisiae and a sequential K. marxianus - S. cerevisiae fermentations were also included as controls. At the end of fermentation, samples were collected and the aromatic and polysaccharide composition of the wines were analyzed by GC–MS/MS[1] and HRSEC–RI, respectively[2]. Results indicate that K. marxianus increased short- and medium-chain fatty acids and their corresponding ethyl esters, while acetate esters were reduced. Although no difference in ethyl ester production was observed among K. marxianus protocols, the inoculation ratio was correlated with fatty acids and acetate esters content, with significant Person correlation coefficients (R = 0,74 and R = -0,55, respectively). Regarding grape-derived volatile compounds, protocols were not clearly differentiated. However, a positive trend ($p < 0.05$) was observed for increasing K. marxianus ratio and terpenes, which are typicity markers for Gewürztraminer. Moreover, differences were found in the polymerization degree of the polysaccharides released by the yeasts, which was again strongly correlated with the abundance of K. marxianus (R = -0.77). Thus, the choice of the K. marxianus to S. cerevisiae co-inoculation ratio emerges as an effective strategy for winemakers, allowing for the precise modulation of both the aromatic and polysaccharide profiles of wine.

**References**

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