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Oral communication

Further insight on the use of Yeast Derivative Products as alcoholic fermentation enhancers

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Abstract
Yeast nutrient imbalances, such as deficiencies in assimilable nitrogen and accumulation of short- and medium-chain fatty acids, can inhibit *Saccharomyces cerevisiae* during alcoholic fermentation. Yeast derivative products (YDPs) could supplement nitrogen, detoxify inhibitory fatty acids, and deliver sterol-rich cell-wall fragments that integrate into active dry yeast (ADY) membranes, enhancing rehydration and membrane repair.
In this study, six YDPs of different composition and nature were added either to grape must or during ADY rehydration. In addition, an experimental design was carried out considering 3 different musts fermented at three temperatures with three YDP concentrations. Fermentation kinetics and general chemical composition seemed to not change depending on the YDP addition. The temperature seemed to play a more relevant role.
SPME-GC/MS revealed YDP-induced shifts in volatile organic compound profiles, affecting esters, higher alcohols, and fatty acids volatile concentrations. Sensory evaluation individuated perceptible differences in aroma and flavor. These effects depended on the timing of YDP addition, dosage, and fermentation temperature.
In conclusion, while YDPs under adequate assimilable nitrogen conditions did not alter fermentation performance in this case study, they modulated wine aroma and sensory complexity, underscoring the need for precise optimization of YDP application in enological practice.