

## THE INFLUENCE OF THE COMPLEXITY OF NITROGEN SOURCE IN THE FERMENTATION OF GLUCOSE AND FRUCTOSE BY WINE YEASTS

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Glucose and fructose fermentations, main carbohydrates in wine must, by industrial yeasts strains were strongly affected by the structural complexity of the nitrogen source. In this study two *Saccharomyces cerevisiae* VIN13 and VIN7 industrial strains were grown in synthetic wine must containing glucose 10% (w/v) and fructose 10% (w/v) supplemented with the nitrogen source varying from the single ammonium salt (ammonium sulfate) to free amino acids (casamino acids) and peptides (peptone), under aerobic and anaerobic conditions. In aerobiosis, supplementation with peptone always induced higher biomass accumulation and ethanol production, and preserving yeast viability. High ethanol production and lower biomass accumulation was obtained in the experiments without agitation for all nitrogen sources for both strains, and viability was also higher when compared with fermentations in aerobiosis, despite higher ethanol concentrations. VIN13 strain showed improved fermentation performance under aerobiosis and anaerobiosis when compared with VIN7. Only in aerobiosis, supplementation with nitrogen in the peptide source was more positive for yeast metabolism, inducing higher biomass accumulation and ethanol production. The results shown in this work have industrial relevance since indicate that minor genetic and physiological differences among strain may have a strong effect in yeast metabolism.

Key words: *Saccharomyces cerevisiae*, fermentation, ethanol production.

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