

Title: A STUDY OF GROWTH KINETICS: AUTOCHTHONOUS STRAINS OF *STARMERELLA BACILLARIS*

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Abstract:

Wine is the product of complex microbial interactions. Yeasts, bacteria and molds all contribute to the microbial ecology of wine production. However, little is known about the interactions between *S. cerevisiae* and non-Saccharomyces yeast naturally present during the fermentation process. Different growth conditions have been studied to evaluate the fermentation efficacy during winemaking. *Starmerella Bacillaris* (*Candida Zemplanina*) has a strong fructophilic character and can be used in controlled multistarter fermentations with *Saccharomyces cerevisiae*, which results in a decrease of acetic acid while maintaining high ethanol and glycerol levels comparable with the production of the *Saccharomyces* species alone. *Starmerella Bacillaris* also produces wines with a higher overall quality, higher balance and more intense and diverse aroma. Thus studies on growth kinetics have important implications for the behavior of yeast during fermentation and help explain the use of the metabolic pathways. In the present work 18 strains of *Starmerella Bacillaris* isolated from Friulano and Friularo Passito musts (Veneto, Italy) were studied. The molecular identification of strains was performed by the SAU-PCR (enzyme restriction) technique. The kinetics of the fermentation was automatically monitored by the microtiter plate in optical density (at 28 °C for 25 hours/600nm) in YPD medium (glucose 20g/L, peptone 10g/L, yeast extract 10g/L). The effect of the concentration of peptone (30, 20, 10 g/L) and glucose (30, 20, 10 g/L) microbial growth kinetics was carried out on a two-level factorial design with 3 center points. All the factors analyzed were significant. The model generated was adequate to describe the influence of the factors (glucose and peptone) on the growth of *Starmerella Bacillaris*.

KEYWORDS: *Candida zemplanina*, non-conventional yeasts, Indigenous Yeast

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