



Thesis title:

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Confidential:  Yes  No**Abstract (max 300 words)****Topic position & objectives:**

The use of *Schizosaccharomyces* in enology seems to be of great value even though initially it has been referred as food spoilage microorganism because of the production of metabolites with negative sensorial impact such as volatile acids, H<sub>2</sub>S, or acetaldehyde. In fact, it seems, as *Schizosaccharomyces* is capable of reducing all malic acid while producing sufficient amounts of alcohol and for this, it is a great way to substitute malolactic fermentation -a highly complicated process in enology due to the growing requirements of the bacteria used. Nevertheless *Schizosaccharomyces* can have much more potential than just reducing malic acid contents, such as: reduce the bioamines and ethyl carbamate concentrations, increase the pyruvic acid concentration and thus the vinylphenolic pyranoanthocyanin concentrations, reduce the negative volatile compounds etc. Up until now there are still few commercial strains available and little research has been done selecting appropriate yeast strains taking into account these potentials. In this work two selected (V1 – 4.2 ) and two wild ( 2139 – 938) *Sc. pombe* strains are used versus two selected *Saccharomyces cerevisiae* strains (7VA – CT07) to ferment grape must and study the effect of each yeast strain in the wines produced. Three trials were performed: T1 with urea/ arginine addition, T2 with urea addition and T3 without any addition

**Methods:**

Enzymatic analysis was used to measure the non-volatile compounds and draw the fermentation kinetics. Anthocyanins were measured with high performance liquid chromatography with photodiode array detection (HPLC/PDAD), Volatile Compounds using gas chromatography with a flame ionisation detector (GC-FID), Bioamines with an ultra high performance liquid chromatography and Ethyl carbamate determination according to the normalized procedure Procedimiento Normalizado de Trabajo (PNT) that was validated by the Laboratorio Arbitral del Estado Espanol (Ministerio de Agricultura, Pesca y Alimentacion, MAPA).

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**Results:**

Results from all developed analysis showed significant differences in several parameters including, non-volatile and volatile compounds, anthocyanins, bioamines as well as sensory parameters.

**Main conclusions:**

With this work it is evident that well selected *Schizosaccharomyces pombe* strains can contribute to the wine quality and food safety. Although further research should be done in order to select more appropriate *Sc. pombe* strains in accordance to the wine style wanted. *Sc. pombe* has great potential and there is a need to be further investigated in order to produce more commercial strains.

**Keywords (5):** *Schizosaccharomyces*, *Saccharomyces cerevisiae*, volatile compounds, anthocyanins, bioamines.