



Thesis title:

Student name:	Noga Kosto
Institution/company involved:	UNIVERSIDAD POLITÉCNICA DE MADRID

Jury members (name/position):

Prof. Wendu Tesfaye - Universidad Politécnica de Madrid
Prof. Felipe Palomero- Universidad Politécnica de Madrid
Prof. Jorge Ricardo da Silva- Universidad de Lisboa
Prof. Antonio Morata- Universidad Politécnica de Madrid
Prof. Iris Loria- Universidad Politécnica de Madrid

Names &amp; emails of supervisors:

Prof. Antonio Morata	antonio.morata@upm.es
Prof. Iris Loria	iris.loira@upm.es

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Confidential:  No**Abstract (max 300 words)**

**Topic position & objectives:** The aging over-lees process is a key step in producing good sparkling wine, the efficiency of the process depends on the initial cell wall structure of the yeast strain and its autolytic behavior. In this work the addition of an exogenous source of non-*Saccharomyces* lees was tested. The objective was to test the influence of the additional non-*Saccharomyces* lees on the polysaccharides release and their influence on the sparkling wine properties.

**Methods:** Second fermentation and aging over-lees in bottle was applied. *Saccharomyces cerevisiae* was used as a control, and two non-*Saccharomyces* yeasts were used: *Saccharomycodes ludwigii* and *Schizosaccharomyces pombe*. Another set of wines with the same inoculated strains were added pre-prepared exogenous lees of *Torulaspora delbrueckii*. Polysaccharide release was tested in a model medium. The contents of polysaccharides and ethanol were detected by using liquid chromatography with refractive index detection, non volatile compounds by using enzymatic auto analyzer, pH and total acidity by Fourier Transform Infrared technology, anthocyanins by using HPLC with photodiode array detection, color parameters and ethanol index by spectrophotometer, volatile compounds by using gas chromatograph with an integrated flame ionization detector. A sensorial analysis was also carried out.

**Results:** Polysaccharides content in model mediums with the additional lees increased. There was a decrease in total anthocyanins after second fermentation. Wines that had the addition of exogenous lees had higher amounts of volatile compounds. No significant differences in the overall quality in sensory analysis.

**Main conclusions:** Additional exogenous lees can increase polysaccharide content in a shorter period. A second fermentation of red wine decreases significantly total anthocyanins. Additional exogenous lees increases volatile compound content especially in wine with non-*Saccharomyces* yeasts and are favorable in a sensory analysis.

**Keywords (5):** Sparkling wine, *Saccharomyces cerevisiae*, *Saccharomycodes ludwigii*, *Schizosaccharomyces pombe*, *Torulaspora delbrueckii*, aging over-lees.