UNIVERSIDAD POLITÉCNICA DE MADRID
ESCUELA TÉCNICA SUPERIOR DE INGENIEROS AGRÓNOMOS
Dpto. Tecnología de Alimentos

Vinifera Euromaster
European MSc of Viticulture and Enology

MASTER OF SCIENCE THESIS

Selection of *Saccharomyces* strains for over-lees aging of red wine and the influence of the grape variety on its use

By: Işık Gülçubuk

Supervisor: Antonio Morata Barrado

2013, January
Madrid

ABSTRACT

Aging over lees is a traditional technique, aiming to leave the lees in contact with the wine for periods ranging from 3 to 10 or more months. This technique is now employed fairly extensively worldwide, and occasionally with red wines, producing changes such as increase in polysaccharide content and nitrogenous compounds, enriched aromatic fraction by the lipids released from the lees.

HPLC with refractive index detection (HPLC/RI) was used to study the autolytic release of polysaccharides from the cell walls of 45 strains of *Saccharomyces cerevisiae* in a model medium over a 120 days period of ageing over lees. The influence of the yeasts on quick rate of autolysis, low ability to adsorb anthocyanins, high release of polysaccharides and ability to adsorb volatile aromas were examined by means of HPLC with photodiode array detection (HPLC/PDAD) for monomeric anthocyanin content, gas chromatograph with an integrated flame ionisation detector (GC-FID) for volatile compounds. These analysis were compiled also for wines from different varieties in order to see the effect of aging over lees on different grape varieties.

Key words: Saccharomyces cerevisiae, aging on lees, polysaccharides, red wines