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## Wood impregnation of yeast lees for winemaking

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### Abstract

This study develops a new method to produce more complex wines by means of an indirect diffusion of wood aromas from yeast cell-walls. An exogenous lyophilized biomass was macerated with an ethanol wood extract solution and subsequently dried. Different times were used for the adsorption of polyphenols and volatile compounds to the yeast cell-walls.

The analysis of polyphenols and volatile compounds (by HPLC/DAD and GC-MS, respectively) demonstrate that the adsorption/diffusion of these compounds from the wood to the yeast takes place. Red wines were also aged with *Saccharomyces cerevisiae* lees that had been impregnated with wood aromas and subsequently dried. Four different types of wood were used: chestnut, cherry, acacia and oak. Large differences were observed between the woods studied with regards to their volatile and polyphenolic profiles.

Sensory evaluations confirmed large differences even with short-term contact between the wines and the lees, showing that the method could be of interest for red wine making. In addition, the results demonstrate the potential of using woods other than oak in cooperage.

**Keywords:** Chestnut, Cherry, Oak, Cell-wall adsorption, *Saccharomyces cerevisiae*, ageing, polyphenols, volatile compounds

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