

## **Kinetics of formation of flavano-C-glycosidic ellagitannins (acutissimin A and B) in model solutions containing medium toasted oak chips and catechin for wine aging**

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### **Abstract**

The aging process of wine goes beyond conservation and involves the use of wood, which is capable of containing and protecting, and allows a limited passage of oxygen, sufficient to promote slow maturation of the wine, thanks to which it reaches the maximum of its organoleptic qualities. The most used wood is oak and during aging, the wine extracts from the wood of the barrels an abundant quantity of aromatic substances, due to the contact between the wine and the matrix of the wood. Among the newly formed compounds, the flavano-ellagitannins, namely the acutissimin A and B, are among the minor compounds found in wood aged wine. They are formed during the aging process through the condensation of tannins, such as vescalagin, extracted from the wood matrix and flavonoids, such as catechins contained in wine. The aim of the study was to verify the formation of acutissimins after 28 days in model solutions that simulated aged wine in the presence of variable percentages of wood chips (1%, 5% and 10%) obtained from *Quercus alba* and with variable concentrations of (+)-catechin (500 mg/L and 100 mg/L). The formation of compounds, including acutissimin A and B, and the disappearance of (+)-catechin were monitored by high-performance liquid chromatography/electrospray ionization/mass spectrometry (HPLC/ESI-MS) HPLC/ESI/MS coupled with a diode array detector (DAD) at wavelengths of 230, 280 and 308 nm. Based on the results obtained, the model system prepared with 500 mg/L of (+) - catechin and 10% oak chips showed the highest content of acutissimin A and B.