

Chêne Développement Newsletter

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Summary

- Natural seasoning of American oak: qualitative markers.
- Brettanomyces* and oak barrels.

Chêne Développement is the Research Department of Chêne & Cie.

Research topics: Interactions between wood and wine, analysis methods, wine cellar hygiene,...

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Natural seasoning of American oak: qualitative markers. By Nicolas Tiquet-Lavandier

Several parameters are used to determine the quality of oak for cooperage purposes. One of them is the long seasoning of oak (at least 24 months). It is well known that, both from a sensory point of view and when considering exchanges between oak staves and wine, this parameter must be taken into account in the choice of barrels.

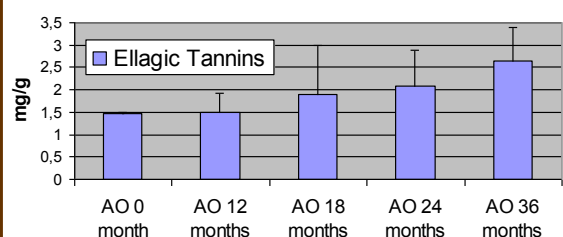
The natural seasoning of American oak - *Quercus alba* - has not yet been studied. This article will examine the observations, chemical evidence and sensorial changes that occur during the natural seasoning of American oak.

We took samples in the yard of the Canton cooperage, in Kentucky, USA. These samples were from staves of different ages (from just sawn, to 12, 18, 24 and 36 months) but they had all the same botanic, geographic and physical characteristics. We took enough samples to be able to measure the standard variations in each category.

Oak tannins, aromas, aldehydes and acids were all measured. Aromatic profiles were determined for the same samples by a highly skilled trial. All the results were treated by statistics.

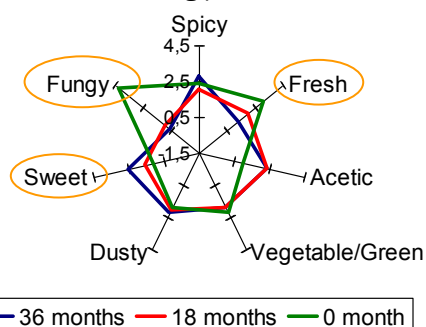
Ellagic tannins evolution

Releasable phenolic compounds tend to increase throughout the natural seasoning process. Ellagic Tannins increase in the same way. They have an important impact on the structure of the wine and on the mouth feel.



Sensorial analyses

The sensorial analyses show that three main descriptors evolve significantly during the seasoning process: freshness tends to decrease from 0 months to 36 months, the sweet character tends to increase from 0 to 36 months and the fungus character greatly decreases during the first 18 months of the seasoning process.



Other significant results

Whisky lactone (coconut flavour) decreases during the seasoning process down to a level comparative with French oak staves seasoned for 36 months.

β -ionone (floral aroma) increases through the seasoning process. This mainly concerns the American oak.

At the same time as these two interesting evolutions occur, the standard variation decreases. In other words, the long seasoning process makes the different staves more homogeneous.



The natural seasoning of American oak is a complex phenomenon. We have observed significant differences between the different samples: changes in the phenolic composition and changes in the aromatic profiles. These changes are perceptible by tasters.

A seasoning of 36 months makes the 'typical' American oak character (whisky lactone) less obvious. It certainly allows a greater complexity, and it develops new qualitative aromas.