

Comparison of alternative systems for the ageing of wine brandy. Wood shape and wood botanical species effect.

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Abstract:

During the first year of ageing, the dissolved oxygen, dry extract, total polyphenol index and colour of Lourinhã wine brandies were analysed with regard to the kind of ageing system: 650-L wooden barrels (traditional system) and 40-L stainless-steel tanks with wood staves or wood tablets (alternative systems). In each system two different kinds of wood were used: Portuguese chestnut (*Castanea sativa* Mill.) or Limousin oak (*Quercus robur* L.), with heavy toasting level. The quantity of staves and tablets was calculated in order to reproduce the surface/volume ratio of a 650-L barrel. The results obtained show that the wood shape has a very significant effect on the chemical composition and colour of the aged brandies. The wood staves promote the greatest enrichment in wood extractable compounds and the lowest oxygen consumption in the brandies, while the wood tablets cause the fastest evolution of the colour of brandies. This fact indicates that modifications observed in the aged brandies are closely related to the kind of ageing system, suggesting that many constituents and phenomena governed by several ageing factors should be involved. Concerning the wood botanical species, chestnut is the most interesting wood for the ageing of the studied brandies, allowing their greater enrichment in wood extractable compounds and their faster evolution, independently of the ageing system, and thus contributing to improve their quality and to shorten the ageing period.