Effect of wood alternatives origin and size on the chemical composition and aging of tsipouro.

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Abstract

Tsipouro, a traditional Greek spirit made from grape marc, is typically consumed as a clear, unaged distillate. However, aging practices using oak barrels have introduced "aged tsipouro," which offers a distinctive aromatic profile from both varietal and wood-derived aromas. In response to growing consumer demand for innovative spirits, alternative aging methods using wood fragments, such as oak toasted chips, has gained attention [1]. This study aimed to investigate the impact of different wood fragment sizes (thin wood sheets, dominoes and sticks) from American oak (AO), French oak (FO), Greek oak (GO), and Greek chestnut (GC) on tsipouro aging. While extensive research has examined the influence of oak chips on various beverages like wines, beers, whiskies, and brandies [2], there is limited knowledge on their application in tsipouro maturation. Gas Chromatography–Mass Spectrometry (GC-MS) was used to analyze extracts from tsipouro aged with these wood fragments. Our findings revealed that syringaldehyde, vanillin, acetovanillone, and guaiacol were present in all samples, irrespective of wood species or dimensions. Among these, syringaldehyde consistently exhibiting the highest concentrations, ranging from 12.18 mg/L in FO thin wood sheets to 1.68 mg/L in GC dominoes. FO thin wood sheets yielded the highest extraction efficiency, followed by sticks and dominoes, while sticks were more effective for AO. Similarly, sticks were optimal for GC, while dominoes were more effective for GO. It is noteworthy that GO exhibited satisfactory performance compared to AO and FO, irrespective of fragment size. Moreover, although chestnut wood produced fewer compounds, it was still considered suitable for tsipouro aging. In general, the findings contribute to a deeper understanding of how wood type and fragment size affect the physicochemical and organoleptic properties of tsipouro, offering insights into potential advancements in the production of this traditional spirit.

References:
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