Underwater jars reveal Roman period winemaking practices
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Winemaking practices in coastal Italy during the Roman period involved using native grapes for making wine in jars waterproofed with imported tar pitch, according to a study published June 29, 2022 in *PLOS ONE* by Louise Chassouant of Avignon University and colleagues.

The authors examined three Roman period amphorae—wine jars—from a seabed deposit near the modern harbor of San Felice Circeo, Italy, about 90 km southeast of Rome. A combination of chemical markers, plant tissue residue, and pollen provided evidence of grape derivatives and pine within the jars. The evidence suggests the amphorae were used in both red and white winemaking processes, while the pine was used to create tar for waterproofing the jars and perhaps also flavoring the wine, as has been observed at similar archaeological sites.

The grapevine pollen matches wild species from the area, suggesting these winemakers were using local plants, although it remains unclear whether these were domesticated at the time. The pine tar, on the other hand, is non-local, and was likely imported from Calabria or Sicily based on other historical sources.

The authors emphasize the benefit of this multidisciplinary approach to characterize cultural practices from archaeological artifacts. In this case, the identification of plant remains, chemical analysis, historical and archaeological records, amphorae design, and previous findings all contributed to the conclusions of this analysis, providing an example of methodology for interpreting a history beyond the artifacts that would not be possible using a single technique.

The authors add, "If there was a message to be retained from the reading of this article, it would be related to the multidisciplinary methodology to be applied. Indeed, by using different approaches to unravel the content and nature of the coating layer of Roman amphorae, we have pushed the conclusion further in the understanding of ancient practices than it would have been with a single approach."

**More information:** Archaeobotanical and chemical investigations on wine amphorae from San Felice Circeo (Italy) shed light on grape beverages at the Roman time, *PLoS ONE* (2022). DOI: 10.1371/journal.pone.0267129

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