

“ORANGE” WINE: A MODERN REVOLUTION OF AN ANCIENT WINEMAKING TECHNIQUE

“ORANGE” WINE: O REVOLUȚIE MODERNĂ A UNEI TEHNOLOGII ARHAICE

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Abstract. *Over the past few decades, there has been a notable paradigm shift worldwide, affecting people’s preferences and decisions regarding both food and beverage options. These factors have sparked a new found fascination among winemakers, wine enthusiasts, and consumers alike, as they explore the notion of reconnecting with a bygone era and embracing a lifestyle reminiscent of the past. “Orange” wine, a product derived from white grapes, encapsulates the intriguing allure of ancient winemaking methods that trace their roots back to Georgia. The method enables an elevated presence of phenolic compounds, which can have a favorable influence on the sensory characteristics of the wines or their behavior during oxidative processes. Given the scarcity of widespread knowledge, this overview aims to provide a comprehensive understanding of the historical evolution of winemaking and its various transformations over the years. It delves into the intricacies of winemaking technology, particularly focusing on the unique utilization of qvevri vessels. In addition to traditional sources, this review examines the influence of winemaking technology and the utilization of special vessels on the characteristics of “orange” wines. It explores the unique traits that develop in these wines as a result of prolonged maceration. By considering the impact of these factors, the review offers insights into the distinct qualities and attributes that emerge in “orange” wines during the winemaking process.*

Keywords: orange; qvevri; Georgia; ancient; winemaking; technology; history

Rezumat. *În ultimele câteva decenii, a avut loc o schimbare de idealuri notabilă la nivel mondial, care a afectat preferințele și deciziile oamenilor în ceea ce privește atât opțiunile alimentare, cât și cele legate de băuturi. Acești factori au stârnit o nouă fascinație în rândul vinificatorilor, al pasionaților de vinuri și al consumatorilor deopotrivă, aceștia explorând noțiunea de reconectare cu o epocă trecută și îmbrățișând un stil de viață care amintește de trecut. Vinul „orange”, un produs derivat din struguri albi, încapsulează farmecul intrigant al metodelor antice de vinificare care își au rădăcinile în Georgia. Metoda permite o prezență ridicată a compușilor fenolici, care pot avea o influență favorabilă asupra caracteristicilor senzoriale ale vinurilor sau asupra comportamentului lor în timpul proceselor oxidative. Având în vedere*

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lipsa de cunoștințe răspândite, această prezentare generală își propune să ofere o înțelegere cuprinzătoare a evoluției istorice a vinificației și a diferitelor transformări ale acesteia de-a lungul anilor. Se aprofundează complexitatea tehnologiei de vinificație, concentrându-se în special pe utilizarea unică a vaselor qvevri. Pe lângă sursele tradiționale, această analiză examinează influența tehnologiei de vinificație și a utilizării vaselor speciale asupra caracteristicilor vinurilor "orange". Se explorează trăsăturile unice care se dezvoltă în aceste vinuri ca urmare a unei macerări prelungite. Prin luarea în considerare a impactului acestor factori, analiza oferă o perspectivă asupra calităților și atributelor distincte care apar în vinurile „orange” în timpul procesului de vinificare.

Cuvinte cheie: orange; qvevri; Georgia; arhaic; vinificație; tehnologie; istorie

INTRODUCTION

Originating from the cultural crossroads between Western Asia and Eastern Europe, specifically in Georgia, an ancient winemaking tradition thrives and continues to resonate in the modern wine world. This deep-rooted history traces back to the Neolithic period, around 6000-5000 BC, when wines were crafted in pottery vessels that served as multipurpose containers for both fermentation and aging of the wine. The preservation and revival of this ancient winemaking heritage highlight its enduring significance and its contribution to the rich tapestry of the wine industry (McGovern *et al.* 2017). In recent times, there has been a reborn and restructuring of the Georgian technique for producing skin-macerated wines. This method has re-emerged in the wine world and has gained recognition within the industry. Notably, the International Organisation of Vine and Wine (OIV) stepped in and regulated this field in 2020, providing a framework and guidelines for the production of these unique wines. The acknowledgment from the OIV highlights the growing significance and acceptance of this Georgian winemaking technique on a global scale (OIV 2021).

While the skin maceration technique is commonly associated with red wine production, it is also employed in white wine production as pre-fermentative skin maceration. This technique aims to enhance the extraction of varietal aromas and improve the overall quality of the wine. By embracing such methods, winemakers can create unique and aromatic white wines that captivate the palates of discerning consumers seeking distinctive and high-quality products (Gómez-Míguez *et al.* 2007). In the winemaking process, the grapes are typically destemmed and crushed before undergoing maceration together with the must. This maceration step takes place under carefully controlled conditions, with factors such as time and temperature playing vital roles. During maceration, phenolic compounds are extracted from the grape skins, which can contribute to increased bitterness, astringency, and the browning of white wines.

The informal labeling: “orange” wine, amber wine, or qvevri wine may be misleading, however, the processing style is similar to the one of the red winemaking, resulting in a “distinctive dry and tannic white-grape wine style” as Jancis Robinson states (Robinson and Harding 2015). "Orange" wines refer to wines produced from white wine grape varieties possessing elevated phenolic compound

content, undergoing an extended maceration-fermentation phase within the technological process (Howard 2017; Ходаков *et al.* 2023). These wines possess distinct sensory characteristics that set them apart from traditional white wines. While they retain some of the flavor profiles commonly associated with white wines, their texture, and astringency resemble those of red wines. The defining attributes of these wines are primarily enhanced through the skin contact fermentation method, which involves fermenting the grapes with or without destemming, followed by a prolonged post-fermentation period that can last for weeks, months, or even years.

“ORANGE” WINE: THE TECHNOLOGY OR HOW TO PRODUCE A DIFFERENT WINE

Traditional white winemaking techniques typically do not involve prolonged contact between the solid parts of the grapes and the grape must during fermentation and post-fermentation stages. In order to extract specific aromatic or phenolic compounds, winemakers often employ pre-fermentation maceration, a method commonly utilized for aromatic grape varieties. This technique allows for enhanced extraction of desired compounds prior to the actual fermentation process (Darias-Martín *et al.* 2000). The ancient winemaking technique utilizing clay vessels known as qvevri has sparked a trend for long-macerated white wines both in Europe and beyond, often referred to as “orange” wine, “amber” wine, or qvevri wine. This unique technique involves an extended period of maceration, starting from one month and lasting up to years, where the wine remains in contact with the grape skins, seeds, and stems (Glonti 2010; Mirvelashvili and Maghradze 2015). The method is used in almost all of the winemaking Georgian regions. However, the most renowned and the place of its origins is the Kakheti region (Figure 1), where the wine was and is still produced after the most archaic method, in clay vessels, qvevris (Capece *et al.* 2013). In the traditional Kakhetian method, grapes were initially pressed using old wooden presses known as sacnaheli. However, in modern winemaking practices, grapes are not pressed but instead crushed using modern crushers. The resulting juice, along with the pulp, skins, and sometimes stems, is then transferred directly to the qvevri vessel, typically through a gravity-fed process. The cellars where these wines are produced are traditionally called marani, which are unique as they are built underground rather than the conventional above-ground cellars. The qvevris themselves are buried in the ground, allowing them to benefit from the consistent temperature and surrounding conditions that help regulate the fermentation process (Granik 2019).



Fig. 1 Basic representation of long-macerated white wine technology

QVEVRI – THE ANCIENT WINEMAKING VESSEL

The qvevri vessels hold a truly extraordinary place within the cultural identity of Georgia. These unique earthenware amphorae embody centuries of tradition, craftsmanship, and a deep connection to the land. The knowledge and experience of Qvevri manufacture and winemaking are deeply ingrained within the fabric of Georgian society. Within Georgian households, the secrets of Qvevri manufacture are carefully guarded and transmitted from elders to the younger members of the family (Kharbedia 2014). Georgia's traditional winemaking method of fermenting grapes in earthenware, egg-shaped vessels gaining recognition on the UNESCO World Heritage List in 2013 is a significant milestone for Georgian culture. This esteemed honor not only recognizes the craftsmanship and cultural importance of the qvevri vessels but also acknowledges the invaluable contribution of Georgian winemaking to the global heritage of viticulture (Meladze 2016). The qvevri crafting process must be divided into multiple phases (fig. 2), as it involves the assembling of circular layers of clay, each having a thickness of approximately 30 – 40 cm. It requires careful attention to preserve their uniform shape and methodically connect them (Dzagnidze 2023).

The selection of vessels used for fermentation and maceration plays a crucial role in shaping the characteristics and qualities of wines, alongside the influence of long-term maceration technology. However, there is a lack of comprehensive research specifically focusing on the direct impact of qvevri vessels on wines undergoing fermentation or maturation within them. The type of container used also impacted the phenolic compounds present in the wines. The engobe amphoras and stainless steel tanks showed increased retention of phenolic compounds compared to other types of amphoras. Flavonoids experienced a significant reduction after 12 months of storage in all containers, while flavans underwent a complete reduction in raw and glazed amphoras and a reduction of

up to 59% in other containers. These findings align with similar research conducted on Minutolo grapes under reductive conditions (Baiano and Varva 2019)

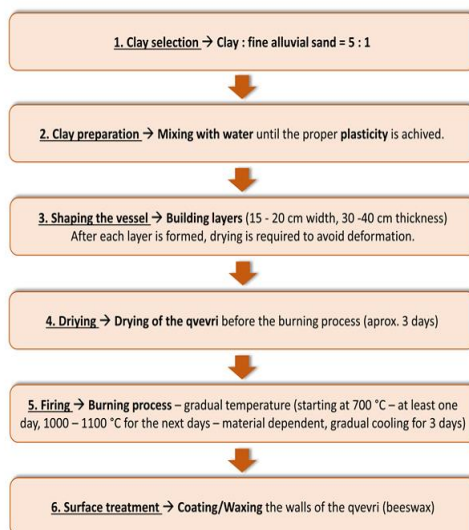


Fig. 2 Steps for manufacturing qvevri vessels

CONCLUSIONS

The increasing demand for unique and uncommon offerings has created a promising opportunity for "orange" wine, also known as qvevri wine, to leave a distinct mark in the industry. The success of this endeavor hinges on the visionary storytelling, creative flair, and passion of winemakers and wine enthusiasts involved.

One of the driving factors behind the rising popularity of "orange" wine is its advantageous properties compared to other wine types. The increased levels of phenolic compounds enhance its antioxidant capacity. Substantial research has showcased the potential advantages linked to its heightened ability to contribute to oxidative processes, particularly due to the presence of tannins. Beyond its potential anti-scavenging role, "orange" wine offers a genuinely distinctive sensory journey, presenting unexpected aromatic attributes that distinguish it from conventional red and white wines.

While the winemaking process for "orange" wine shares some similarities with red wine production, it closely echoes ancient winemaking traditions. The deep connection with the past is evident in the utilization of vessels for fermentation and maceration, emphasizing a harmonious relationship with nature. These distinctive winemaking steps infuse "orange" wine with remarkable attributes, firmly rooted in traditional winemaking practices.

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