



ABSTRACT BOOK

**International Web Conference on
Food Choice &
Eating Motivation**

Coordenação Editorial

Cristina Lima
Ana Margarida Cunha
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Phenolic profile from the pomace of two portuguese grape varieties: sustainability and food safety as new natural additives.

PHENOLIC PROFILE FROM THE POMACE OF TWO PORTUGUESE GRAPE VARIETIES: SUSTAINABILITY AND FOOD SAFETY AS NEW NATURAL ADDITIVES

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Grapes are one of the most produced fruit crops worldwide. About 75% of produced grapes is planned for wine production, originating 20-30% of waste products. This waste is mainly constituted by grape pomace, which includes fruit peels, remaining pulp, seeds, and stalks. Moreover, therapeutic properties of plants and their by-products have been increasingly described, because of their strong antioxidant values, absence of side effects, and economic viability. Synthetic antioxidants have been used as supplements, however, their utilization in foods has health concerns. Grape pomaces have biotechnological potential, having been applied in several studies as fortification ingredients in foods. Reuse of the grape pomace depends on its composition and characteristics. Because grape pomace is a highly perishable product (due to the high moisture content) and given the high volumes generated during harvest season, the utilization of fresh grape pomace is unfeasible and requires an appropriate method of preservation. Thus, grape pomace can be reused to extract oil, to obtain antioxidants, and prepare antibacterial agent's. Additionally, from a nutritional perspective, polyphenols are the most important constituents of grape pomace. Large amounts of the residual quantities of bioactive substances remain in the vegetable tissues: phenolic acids, several flavonoids, flavanols (e.g., catechin, epicatechin and epigallocatechin) and other phenolic compounds (proanthocyanidins or condensed tannins). Given the importance of winemaking in Portugal and considering that the extraction of polyphenols from grape pomace represents an attractive, sustainable, and cost-effective source of high-value biological properties, which could be incorporated into foods, as natural additives, the phenolic profile of two national grape pomace varieties (Touriga Nacional (red) and Alvarinho (white)) was studied. Phenolic compounds were identified and quantified by Reverse-Phase High Performance Liquid Chromatography (RP HPLC) equipped with a diode array detector (HPLC-DAD). Results revealed a broader spectrum of bioactive compounds, as well as higher levels in red grape pomace. Some phenolics, such as vanillic acid (0.18 mg/g) and syringic acid (0.09 mg/g), were found only in red grape pomace, while quercetin (0.40 mg/g) was found only in white grape pomace. In fact, quercetin is a flavonoid that does not possess much expression in the colour of plant products; however, it is easily found in abundance in nature. All identified compounds are phenolic acids, flavonoids (flavanols and flavonols) or stilbenes. Catechin, epicatechin and epigallocatechin were the major compounds in both grape pomaces, reinforcing their use as functional additives, as these compounds have been associated with important biological properties such as antibacterial functions (for catechin and epicatechin) and free radical scavenging and anti-inflammatory activity (catechin). The predominant flavonoid present in red grape pomace was rutin, also known as vitamin P, recognized for its antineoplastic, antioxidant, antidiabetic, anti-inflammatory, antibacterial, antifungal, neuroprotective, cardioprotective, hepatoprotective, nephroprotective and hepatoprotective properties. The results present on this work prove that the recovery of phenolic compounds from grape pomace is one of the viable possibilities to reuse this waste as a cheap source of rich bioactive compounds that can, later, be used on other industries.

Keywords: Phenolic profile; RP-HPLC; Grape pomace; Portuguese grapes varieties; Natural additive



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