

## EVALUATION OF PHENOLIC COMPOSITION OF RED GRAPE DRIED POMACE - A SUSTAINABLE SOURCE OF BIOACTIVE COMPOUNDS

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**Introduction.** Grapes are one of the most produced crops worldwide with an estimated production of about 79 million tons, approximately 75% of grapes being used for wine production, out of which 20–30% represents waste products [1]. Winemaking waste, mainly as grape pomace (grape skins, pulp seeds and stalks) and wine lees, represent an important environmental issue, their recovery and reintroduction into the food technology circuit is one of the main objectives of sustainable horticulture. Among the recoverable compounds from grape pomace, phenolic compounds remain the most valuable, showing great potential from both the nutritional and therapeutic point of view [2]. Phenolic substances are concentrated in the skin and seeds, i.e. exactly that part which remains as pomace after their processing. After winemaking, due to their poor extraction during the process, about 70% of phenolic compounds remain in the grape pomace (anthocyanins, proanthocyanidins, phenolic acids or stilbenes).

**Material and methods.** The purpose of the current study was the assesment of phenolic compounds content and composition from grape pomace resulted as waste from the winemaking of cosmopolitan *Vitis vinifera* L. varieties Cabernet Sauvignon, Merlot and Pinot gris (Copou-Iasi wine center, NE of Romania). After grape crushing and destemming, the maceration was conducted for 72 hours, followed by pressing (pneumatic press), the pomace being recovered and dried under natural conditions. For the extraction, the dried pomace was ground (< 0.2 mm) and three successive extractions with 80% ethanol with 0.1% HCl were performed. pH differential method (anthocyanin assay) and Folin-Ciocalteu reagent (total phenolics) were used.

**Results.** The total phenolic content of the dried pomace varied from 1.34±0.03 to 1.97±0.10 g/ 100 g as gallic acid, while the anthocyanin content was between 327.58±1.52 (Pinot gris) and 890.32±3.81 mg/100 g (Cabernet Sauvignon). Total flavonoid content (Dowd method) was higher in Cabernet Sauvignon dry pomace, up to 653.48±2.31 mg/100 g as quercetin. The ratio between catechins (vanillin reaction), as monomeric flavanolic units, and proanthocyanidins, as polymerized flavanols (Bate-Smith assay) was determined, showing the high degree of polymerization of the grape pomace tannins. The polyphenolic index (D<sub>280</sub>) varied widely depending on the variety, between 26.66 and 47.28.

**Conclusions.** The high amount of polyphenolic compounds extracted demonstrate that grape pomace, even in dry state, is a valuable and accessible source of bioactive metabolites for the food and pharmaceutical industries, with a huge functional potential still insufficiently exploited.

**Keywords:** anthocyanin, dry pomace, polyphenol, tannins, winemaking, vegetal waste.

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