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## **EXTRACTION OF BIOCHEMICALS FROM THE WINE INDUSTRY BY-PRODUCTS AND THEIR VALORIZATION**

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### **Abstract**

The production process of wine and distilled generates several by-products (20-30% of total production). Currently, most of the solid by-products (pomace, stalks, lees and seeds) obtained as downstream of the winery industry, are conferred to the distillery or, less frequently, used in agriculture and for energy production. As a consequence, much of the antioxidant compounds contained in the grape is unused in the products of processing and is lost. These substances (among which the most important are polyphenols, anthocyanins and resveratrol) are a heterogeneous group of compounds particularly known for their beneficial effects on human health. In this article we present the results arising from a pilot scale research devoted to the evaluation of the extraction of such important compounds from the by-products of four varieties of Italian grape varieties. The pomaces obtained after wine production were extracted by innovative technologies, such as steam explosion and enzymatic extraction, without the use of organic solvents. The results show that it is possible to recover relevant amounts of polyphenols (up to 1383±50 mg GAE/L), anthocyanins (up to 148±2 mg/L) and resveratrol (up to 0.064 mg/L) from such by-products. Moreover, the recovered biochemicals are functional and act as radical scavenger, suggesting possible future applications in the cosmetics industry. The novel approach proposed here supports the possible application of steam explosion as industrial techniques to recover valuable compounds from grape pomace in a sustainable perspective from the economic and environmental standpoint.

*Key words:* cosmetics, Italian vineyard, polyphenol, wine industry by-products

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