

Polyphenolic content and biological properties of Avola almond (*Prunus dulcis* Mill. D.A. Webb) skin and its industrial byproducts

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Almonds are cultivated around the world under very diversified growth conditions and this lead to substantial differences in terms of nutritional and organoleptic properties between different cultivars. For this reason Avola almond, although limited to a very restricted area of Sicily, is internationally recognized as a valuable source. Although several studies are available on the polyphenolic content and bioactivity of Californian almonds, no information is currently available on the Avola almond and its main industrial by-products, blanched skin and blanch water [1]. The industrial processes, especially those concerning the almond blanching, are currently not standardized, with effect on substantial changes in the polyphenolic content of byproducts.

The aim of present work was to characterize for the first time the phenol composition, antioxidant power and cytoprotective activity of the extracts of the main industrial by-products of Avola almonds. 21 derivatives of flavanon, flavonols, flavan-3-ols and phenolic acid were identified. Natural skin had the highest amount of all classes of compounds analyzed and, according to this result, the major scavenging activity in all antioxidant assays performed (ORAC, DPPH, TEAC and FRAP) with correlation coefficients $\geq 0,995$ [2]. We obtained the same results with respect to the cytoprotective activity on isolated human peripheral blood lymphocytes and inhibition of erythrocytes membrane lipid peroxidation induced by *tert*-butyl hydroperoxide (t-BOOH) [3]. The results highlighted interesting and strong biological activities of the extracts under study (rich source of polyphenols). Therefore, possible ways to further exploit the use of industrial byproducts from Avola almonds could be identified for the pharmaceutical and nutaceutical industries [4].

References

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