

Re-use of grape pomace flour as new ingredient for pasta fortification

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The winemaking industry produces large volumes of waste and by-products, among these, pomace is an important source of bioactive molecules like polyphenols, dietary fiber, unsaturated fatty acids, etc. Only a small amount of this by-product is recycled thus potentially resulting in an environmental problem. Over the last years, the evaluation of grape pomace flour as a functional alternative ingredient and its recovery into value-added food products have attracted great interest. In this study, fortified pasta was prepared through the replacement of durum wheat semolina with 5 % of pomace flour from one white grape cultivar (Fiano) and two red grape cultivars (Aglanico and Lambrusco). Fortified uncooked and cooked pasta samples were characterized by bioactive molecule content and profile. High Performance Liquid Chromatography analysis of both soluble and bound phenols, tocochromanols and carotenoids was performed. In uncooked pasta fortified with both white and red grape pomace, soluble phenolic molecule content significantly increased while the content of bound phenols increased slightly in pasta added with red grape pomace only. During the cooking process, bound phenols were lost, while soluble phenols showed a net increase both in control and fortified pasta samples. Moreover, cooked fortified pasta showed a higher soluble phenolic content than the control. Both tocochromanols and carotenoids showed a net increase in uncooked pasta added with either white grape pomace or red grape pomace. In the cooked samples, tocochromanol and carotenoid content slightly decreased; despite the losses, cooked pasta still presented a significant higher content of these molecules with respect to the control. These results show that pasta fortified with Fiano, Aglianico and Lambrusco grape pomace flour could represent a food product enriched with functional molecules and a potential technological alternative for the food industry by-products re-use.

Key words: Food fortification; pomace; wine-by products; bioactive molecules