

Assessment of Grape Pomace Polyphenols

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Abstract

World-wide, the wine industry generates billions of litres of wine and approximately 8.49 million tons of grape pomace (GP) as a by-product, per annum. Grape pomace accounts for ~60% of the total solid waste produced by wineries, with white GP being the predominant by-product. Moreover, the disposal of GP causes serious environmental and economic concerns for the wine industry. This problem has drawn the attention of researchers, food manufacturers, and nutraceutical/pharmaceutical industries, because of its high phenolic content which was shown to have potential beneficial health promoting properties to humans. Researchers have therefore proposed using grape pomace to produce a variety of novel value-added products such as ethanol, enzymes, aroma compounds and organic acids, supporting the sustainability of the winemaking industry. This investigation aims to chemically and sensorially compare polyphenols of white skins and seeds extracted into the effluent water during processing, to other commercially available products. Preliminary sensory analysis was conducted in which a panel of experienced tasters were trained to evaluate standard food-grade solutions containing: aluminium sulphate, tartaric acid, quinine sulphate, and catechin to determine whether they could identify any distinct differences between samples or identify and describe any mouthfeel descriptors they perceived (i.e., bitterness, astringency, irritation and mouthfeel acceptability). Descriptive sensory analyses were conducted on model wines and charcoal treated wines with added phenols. All trials were done in triplicate. Results of these sensory evaluation sessions revealed no significant difference amongst most products except for one commercial product that was unacceptable with regard to mouthfeel properties. The results showed promise and will be trialled in real wines during the 2023 harvest season.