

GRAPE POMACE-DERIVED PRODUCTS: A COMPARATIVE STUDY REGARDING NUTRITIONAL COMPOSITION

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Wine-making industry produce millions of tons of residues (grape pomace), which need proper management, both ecological and economic levels to answer to sustainable issues. Grape pomace is mainly composed by grape skins and seeds and can be used for tartaric acid extraction or ethanol production. It can also be used as soil fertilizer, but its high levels of phenolics can represent an issue since they inhibit seed germination. Grape seeds can be used to obtain grape seed oil, which is known for its nutritional value (72% of linoleic acid and a very high smoking point, being adequate for frying) and moisturizing properties (with interest for cosmetics). After oil production, a residue is obtained-grape seed flour-which is a good source of polyphenols, including proanthocyanidins, and dietary fiber. Cellulose, hemicelluloses, and water extractable proteins essentially constitute grape skins that remain after seeds removal. In order to characterize these grape pomace-derived products, evaluate their potential for food, and feed applications, their nutritional composition was assessed according to official methods. The results show significant differences ($p < 0.05$) between samples, with the grape seed flour presenting the highest content of total dietary fiber (82.4%) and the lowest amounts of available carbohydrates (2.7%) and total fat (0.5%). In turn, grape skins contained significantly higher levels ($p < 0.05$) of total minerals (8.7%) and available carbohydrates (11.8%), while grape seeds were the richest in total fat (9.5%). As expected, the mixture of grape skins and seed flour presented an intermediate profile compared to its original matrices, showing a high content of dietary fiber (70.8%), protein (12.5%) and ash (6.4%). In general, all these grape pomace-derived products can be seen as interesting sources of protein and dietary fiber.

BIOGRAPHY

Anabela S G Costa is a Postgraduate Laboratory Technical (MSc) at the Faculty of Pharmacy of the University of Porto, Portugal. Since 2007, she is a researcher of REQUIMTE (*Rede de Química e Tecnologia*), the largest network in Chemistry and Chemical Engineering established in Portugal, which is focused on the development of Sustainable Chemistry. Her research activities have been developed at the Department of Chemical Sciences of the Faculty of Pharmacy of the University of Porto in the area of Nutrition and Food Chemistry. She has 24 publications, cited over 200 times. Formerly, she completed her degree in Chemical Engineering at School of Engineering of the Polytechnic of Porto in 2010, and a Master's degree in Consumer Sciences and Nutrition from Faculty of Sciences of the University of Porto in 2012.

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