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**ABSTRACT SUBMISSION FORM**



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Surname, Name: Santos, Arménia Fontes

Email: santos\_armenia@hotmail.com

Institution:

CBQF/Escola Superior de Biotecnologia, Universidade Católica Portuguesa

Address:

Rua Dr. António Bernardino de Almeida, P-4200-100 Porto, Portugal

Abstract:

## POTENTIAL VALORISATION OF VINIFICATION BY-PRODUCTS

**Santos, A.F.**<sup>1,2</sup>, Ferraro, V.<sup>1,2</sup>, Cruz, I.B.<sup>1,2</sup>, Jorge, R.F.<sup>2</sup>, Carvalho, A.P.<sup>1</sup>, Castro, P.M.L.<sup>1</sup> and Pintado, M.E.<sup>1</sup>

<sup>1</sup>CBQF/Escola Superior de Biotecnologia, Universidade Católica Portuguesa, Rua Dr António Bernardino de Almeida, s/n 4200-Porto, Portugal. <sup>2</sup>WeDoTech – Companhia de Ideias e Tecnologias Lda., CiDEB - Escola Superior de Biotecnologia da Universidade Católica Portuguesa R. Dr. António Bernardino de Almeida, s/n 4200-Porto, Portugal

Management and disposal of the large amounts of waste produced by food-processing industry is a serious environmental problem. New processes for a controlled disposal of waste are currently being sought, aiming at waste valorisation into added-value bio-products. Nowadays, Portuguese wine industry produces up to 65000 ton/year of grape (*Vitis vinifera*) pomace, composed of grape seeds, skins and stems. These by-products currently treated as waste, or valorised via distillation, can be an alternative source of natural antioxidants with potential applications in agro-food, pharmaceuticals and cosmetics.

The aim of this work was to characterise the whole grape pomace and their constituents, namely skin and seeds in terms of antioxidant activity, total phenolic compounds and fatty acid profile of seeds oil, present in six Portuguese wine cultivars.

Antioxidant activity has been evaluated by ABTS method, quantification of total phenolic compounds has been performed by Folin-Ciocalteu method, grape seeds oil has been extracted by Soxhlet method and extracts composition has been carried out by GC-FID.

Aqueous extracts of grape seeds showed a higher antioxidant activity (1.381 g l<sup>-1</sup> equivalent of ascorbic acid) than skin (0.828 g l<sup>-1</sup> equivalent of ascorbic acid); additionally, they exhibited a greater content of total phenolic compounds (1.477 g l<sup>-1</sup> equivalent of gallic acid) than skin (0.961 g l<sup>-1</sup> equivalent of gallic acid). The total content of oil in the different type of grape seeds ranged between 5-10%. The main fatty acids present in these samples have been found to be linoleic acid between 63-65%, oleic acid between 20-23%, palmitic acid between 7-9% and stearic acid between 4-5%, all by weight.

The obtained results in this study demonstrate a very high polyphenolic content, suggesting that further studies towards their valorisation can lead to economical viable processes.