

By-products of the food sector as a source of nutrients: the particular case of peach pomace resulting from the juice industry



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Introduction

One of the major problems faced by the agri-industrial sector is the management of the waste that comes from it. The lack of knowledge of the potential within these residues as raw materials in several industrial processes makes it difficult both to use them and to apply them in economically profitable processes [1]. The accumulation of biomass (husks, seeds and bagasse) generated annually by the sector results not only in the degradation of the environment, but also in the loss of compounds of high interest, with potential application in different industrial sectors, namely for the development of new food products, biofuels, pharmaceuticals and chemicals [2].

Objective

In this perspective, the nutritional and chemical characterization of the peach bio residue, *Prunus Persica* (L.) Batsch var. nurcipersica, resulting from the juice processing, was evaluated, in order to study its potential for industrial application.

Samples and methods



Nutritional value (AOAC methods):

- Proteins
- Ash
- Total lipids
- Carbohydrates
- Energetic value

Chemical composition:

- Free sugars (HPLC-RI)
- Organic acids (UFLC-PDA)
- Fatty acids (GC-FID)

Results

Table 1. Nutritional composition (g/100 g dry weight) and energetic value (kcal and kJ) of peach pomace obtained from juice processing (mean ± SD).

Ash	Proteins	Total lipids	Carbohydrates	Energy (kcal)	Energy (kJ)
0.010 ± 0.001	9.088 ± 0.005	0.25 ± 0.01	90.66 ± 0.01	401.2 ± 0.1	1679.7 ± 0.2

Table 2. Composition of free sugars (g/100 g dry weight) of peach pomace obtained from juice processing (mean ± SD).

Fructose	Glucose	Sucrose	Trehalose	Total
22.0 ± 0.4	21.5 ± 0.2	32 ± 1	0.52 ± 0.01	75 ± 2

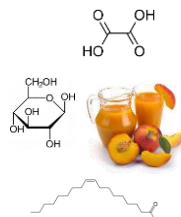
Table 3. Composition of organic acids: oxalic, quinic, malic (g/100g dry weight) and fumaric acid (mg/100g) of peach pomace obtained from juice processing (mean ± SD).

Oxalic	Quinic	Malic	Fumaric	Total
0.58 ± 0.01	1.7 ± 0.1	2.1 ± 0.1	0.014 ± 0.001	4.4 ± 0.2

Table 4. Fatty acid composition (relative %) of peach pomace obtained from juice processing (mean ± SD).

C16:0	C18:0	C18:1n9c	C18:2n6c	C18:3n3	SFA	MUFA	PUFA
28.3 ± 0.2	7.4 ± 0.1	12.7 ± 0.2	23.0 ± 0.2	28.7 ± 0.1	35.7 ± 0.3	12.7 ± 0.2	51.6 ± 0.1

Palmitic acid (C16:0); stearic acid (C18:0); oleic acid (C18:1n9); linoleic acid (C18:2n6); alpha-linolenic acid (C18:3n3). SFA: saturated fatty acids; MUFA: monounsaturated fatty acids; PUFA: polyunsaturated fatty acids



Conclusion



Considering the results, this study allowed the valuing the waste of a raw material widely discarded by the food industry, making known their potential in compounds of interest, to create viable strategies for reincorporation into the value chain

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This work aims to align with objectives 2, 12 and 15 of the sustainable development goals by identifying bio-based functional ingredients to promote food and nutritional security, reducing food waste in production

