

SOME IDENTIFIED BIOLOGICALLY ACTIVE COMPOUNDS FROM THE WALNUT KERNEL'S PELLICLE: WASTES?

Iuliana Sandu^{1*}, Alexei Baerle¹, Floricuța Ranga², Dumitrița Rugina², Adela Pîntea², Antoanela Patras³

¹*Faculty of Food Technology, Technical University of Moldova, Stefan cel Mare Avenue, 168, MD-2004 Chișinău, Republic of Moldova*

²*Department of Chemistry and Biochemistry, University of Agricultural Sciences and Veterinary Medicine, Mănaștur Street 3-5, 400372 Cluj-Napoca, România*

³*Faculty of Horticulture, "Ion Ionescu de la Brad" University of Agricultural Sciences and Veterinary Medicine, M. Sadoveanu Alley 3, 700490 Iași, Romania*

*Corresponding author: iuliana.sandu@tpa.utm.md

The purpose was to detect substances that cause the gradual blackening of walnut kernels. The polyphenols from kernel's pellicle (walnuts of "Kogălniceanu" variety) were supposed to exhaustive ultrasonically-assisted extraction. For recognition of extracted polyphenols, HPLC system "Agilent 1200" with Single Quadrupole Mass Detector and with Diode Array Detector (DAD), was used. The separation of the extracted compounds was performed on the C18 column "Eclipse XDB", 4.6x150mm, particle size 5 μ m, using the gradient of the mobile phases **A** and **B** at 25°C, with a flow rate of 0.5 mL/min. Phase **A**: water with 0.1% acetic acid; Phase **B**: acetonitrile with 0.1% acetic acid. The UV-Vis spectra were recorded in the range of 200-600nm. Chromatograms were analyzed at wavelengths $\lambda_1 = 280$ nm and $\lambda_2 = 360$ nm. Phenolic compounds were identified:

R _t , min	λ_{max} , nm	HM ⁺ , m/z	Compound	ω , %
3.44	230	501	2,3-Hexahydroxydiphenaloyl-glucose	17.9 \pm 1.1
3.84	230	339	2,3-Hexahydroxydiphenic acid	2.6 \pm 0.7
4.50	250	485	Digalloyl-glucose	6.4 \pm 2.0
9.63	250	332	Galloyl-glucose	3.6 \pm 1.3
11.30	280	579	Procyanidin dimmer	20.5 \pm 2.5
12.62	280	291	Catechin	17.2 \pm 2.4
13.16	280	291	Epicatechin	8.2 \pm 1.4
14.25	250	941, 924	Pentagalloyl glucose	7.9 \pm 1.7
14.99	280, 360	936	Casuarictin	8.2 \pm 3.0
16.22	280, 360	303	Ellagic acid	7.6 \pm 2.1

Conclusion: Biologically active polyphenols have an ambiguous effect on the quality and taste of walnuts. Having worked out their redox potential, they become a source of dark color and bitter taste. Their preventive extraction in an unoxidized state before technological processing can significantly improve the quality of such valuable food "wastes" as walnut cake.

Keywords: walnuts pellicle polyphenols, extraction, HPLC

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