

Title	The effect of high pressure processing on polyphenol oxidase activity, phytochemicals and proximate composition of Irish potato cultivars
Authors	Tsikrika, Konstantina;O'Brien, Nora;Rai, Dilip K.
Publication date	2019-10-19
Original Citation	Tsikrika, K., O'Brien, N. and Rai, D. K. (2019) 'The Effect of High Pressure Processing on Polyphenol Oxidase Activity, Phytochemicals and Proximate Composition of Irish Potato Cultivars', Foods, 8(10), 517. (9pp.) doi: 10.3390/foods8100517
Type of publication	Article (peer-reviewed)
Link to publisher's version	10.3390/foods8100517
Rights	©2019 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (http://creativecommons.org/licenses/by/4.0/). - http://creativecommons.org/licenses/by/4.0/
Download date	2024-05-30 02:32:29
Item downloaded from	https://hdl.handle.net/10468/9301



UCC

University College Cork, Ireland
 Coláiste na hOllscoile Corcaigh

Communication

The effect of high pressure processing on polyphenol oxidase activity, phytochemicals and proximate composition of Irish potato cultivars

Konstantina Tsikrika¹, Nora O'Brien², and Dilip K. Rai^{1*}

¹Department of Food Biosciences, Teagasc Food Research Centre, Ashtown, Dublin, D15 KN3K, Ireland; Konstantina.tsikrika@teagasc.ie

²School of Food & Nutritional Sciences, University College Cork, College Road, Cork T12 K8AF, Ireland; nob@ucc.ie

* Correspondence: dilip.raai@teagasc.ie ; Tel.: +353-1-8059500 (D.K.R)

Received: date; Accepted: date; Published: date

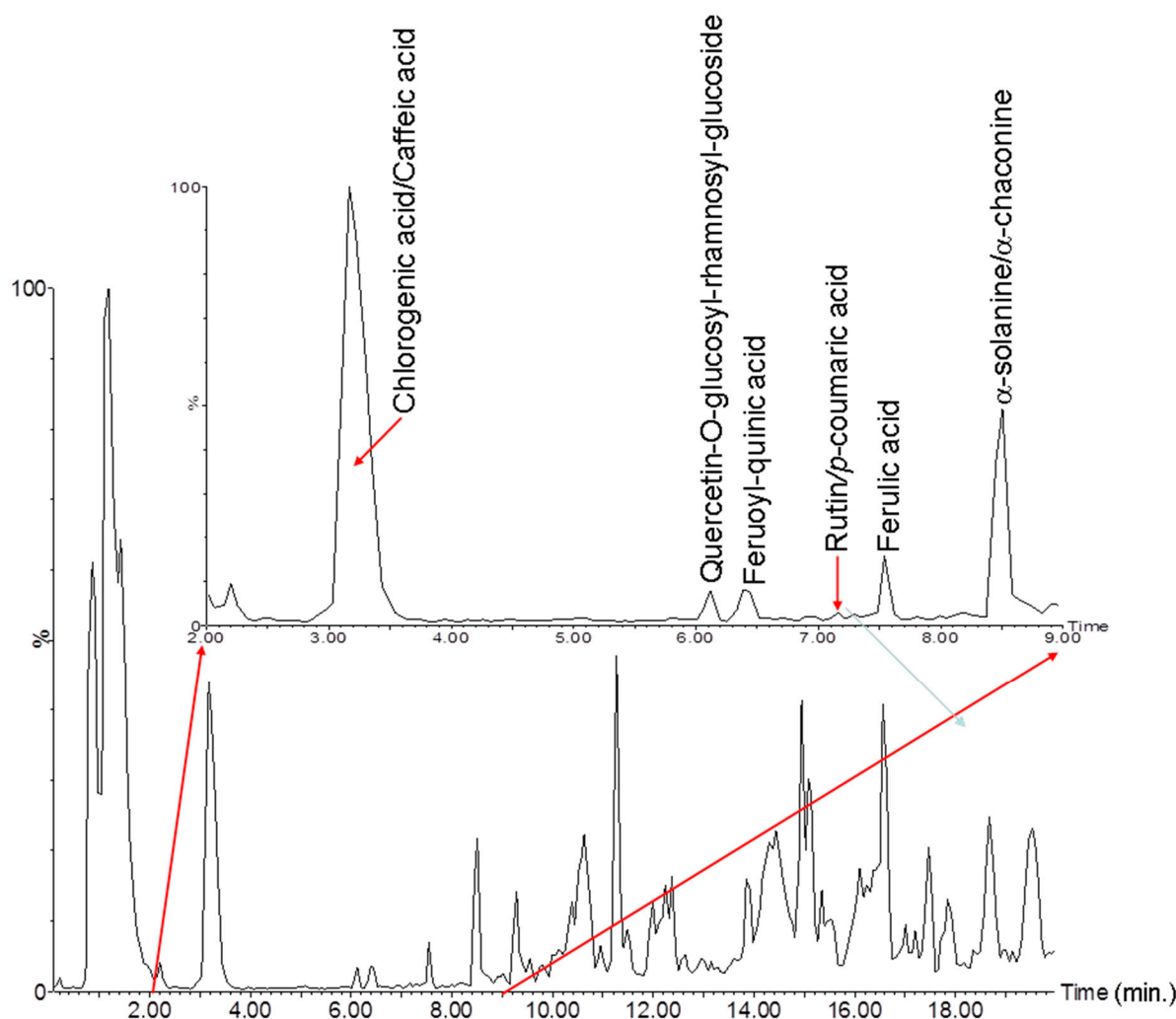


Figure S1: HPLC-Q-ToF-MS profiling of the phytochemicals in the potato (Saxon) extract. Shown in the inset is the LC chromatogram where the polyphenols and glycoalkaloids elute between 2-9 minutes.

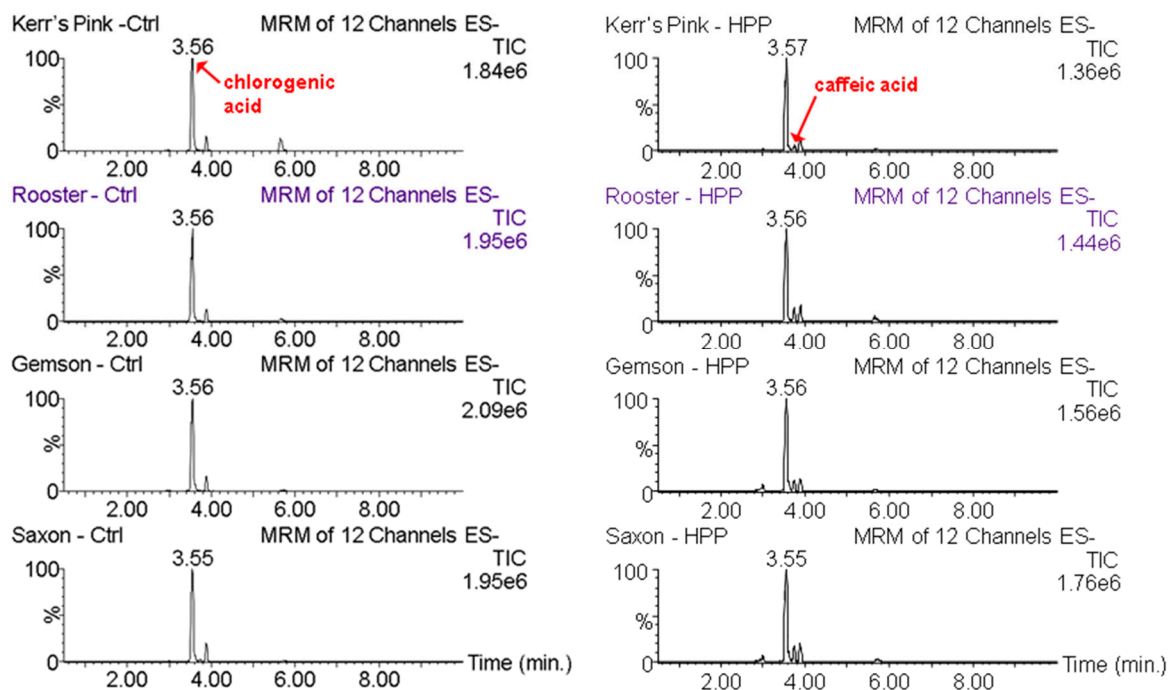


Figure S2: UPLC-TQD-MS quantification of polyphenols in the different potato cultivars prior to (left column) and post-HPP (right column). As evident from the total ion chromatograms (TIC) that chlorogenic acid is the most abundant polyphenol in potatoes, which is reduced in the post-HPP samples with an increase in caffeic acid.

Table S1. Tentative identification of phytochemicals from the potato (Saxon) extract using accurate mass measurement and MS/MS fragment ions

RT (min.)	Observed [M-H] ⁻ (m/z)	Calculated [M-H] ⁻ (m/z)	Molecular formula	MS/MS ions (m/z)	Tentative Identification
0.88	158.9764	158.9752	C ₅ H ₄ O ₄ S	130.99, 115.00	Dihydroxythiophene-carboxylic acid
0.98	191.0541	191.0556	C ₇ H ₁₂ O ₆	147.05	Quinic acid
2.17	203.8050	203.0821	C ₁₁ H ₁₂ N ₂ O ₂	159.09	Tryptophan
3.17	353.0858	353.0873	C ₁₆ H ₁₈ O ₉	191.08, 173.06, 135.06	Chlorogenic acid
3.46	179.0341	179.0344	C ₉ H ₈ O ₄	135.04	Caffeic acid
6.12	771.1978	771.1984	C ₃₃ H ₄₀ O ₂₁	300.03	Quercetin- <i>O</i> -glucosyl-rhamnosyl-glucoside
6.39	367.1015	367.1029	C ₁₇ H ₂₀ O ₉	193.04, 191.05, 173.05	Feruloyl-quinic acid
6.44	625.1384	625.1405	C ₂₇ H ₃₀ O ₁₇	300.03, 191.05	Quercetin- <i>O</i> -di-glucoside
7.16	609.1442	609.1456	C ₂₇ H ₃₀ O ₁₆	301.03	Rutin
7.19	163.0387	163.0395	C ₉ H ₈ O ₃	119.05	<i>p</i> -coumaric acid
7.51	193.0488	193.0501	C ₁₀ H ₁₀ O ₄	134.04, 117.04	Ferulic acid
8.42	866.4885	866.4902	C ₄₅ H ₇₃ NO ₁₅	704.51, 701.32, 558.47	α -solanine
8.48	850.4915	850.4953	C ₄₅ H ₇₃ NO ₁₄	704.41, 422.14	α -chaconine



© 2019 by the authors. Submitted for possible open access publication under the terms and conditions of the Creative Commons Attribution (CC BY) license (<http://creativecommons.org/licenses/by/4.0/>).