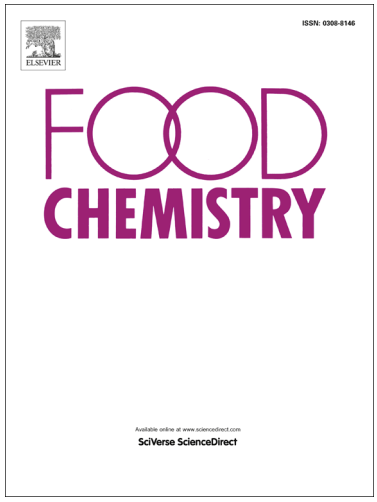

Short communication

Novel biologically active principles from spinach, goji and quinoa

Serena Fiorito, Francesca Preziuso, Francesco Epifano, Luca Scotti, Tonino Bucciarelli, Vito Alessandro Taddeo, Salvatore Genovese

PII: S0308-8146(18)31783-7
DOI: https://doi.org/10.1016/j.foodchem.2018.10.018
Reference: FOCH 23679

To appear in: *Food Chemistry*

Received Date: 21 May 2018
Revised Date: 8 September 2018
Accepted Date: 3 October 2018

Please cite this article as: Fiorito, S., Preziuso, F., Epifano, F., Scotti, L., Bucciarelli, T., Taddeo, V.A., Genovese, S., Novel biologically active principles from spinach, goji and quinoa, *Food Chemistry* (2018), doi: https://doi.org/10.1016/j.foodchem.2018.10.018

Novel biologically active principles from spinach, goji and quinoa

Serena Fiorito[a,b], Francesca Preziuso[b], Francesco Epifano[b*], Luca Scotti[c], Tonino Bucciarelli[c], Vito Alessandro Taddeo[b], Salvatore Genovese[b]

[a]*Dipartimento di Scienze del Farmaco, Università degli Studi di Perugia, Via del Liceo, 06132 Perugia, Italy*

[b]*Dipartimento di Farmacia, Università "G. d'Annunzio" Chieti - Pescara, Via dei Vestini 31, 66100 Chieti Scalo (CH), Italy*

[c]*Dipartimento di Scienze Orali, Mediche e Biotecnologiche, Università "G. d'Annunzio" Chieti-Pescara, Via dei Vestini 31, 66100 Chieti Scalo (CH), Italy*

[*]Corresponding Author' address: Dipartimento di Farmacia, Università "G.d'Annunzio" Chieti-Pescara, Via dei Vestini- 66100 Chieti-Italy, E-mail: fepifano@unich.it

ABSTRACT

Spinach leaves, goji berries and quinoa seeds are claimed to have a great nutraceutical potential due to their high content of compounds providing benefits for human health, such as amino acids, polyunsaturated fatty acids, carotenoids, betaine, vitamins, fibre, minerals and polyphenols. Samples of these plants were extracted with different solvent mixtures (e.g. EtOH, H_2O/EtOH 3:7 and H_2O/EtOH 7:3) and extractions were accomplished using a microwave apparatus. Subsequent UHPLC analysis and photodiode array detection were employed for the quantification of biologically active compounds like 7-isopentenyloxycoumarin, auraptene, umbelliprenin, boropinic acid and 4'-geranyloxyferulic acid. EtOH was found to be the best solvent in terms of extractive yields and the above-mentioned phytochemicals were recorded in the concentration range 2.01 – 49.22 μg/g dry extract. The findings depicted herein revealed that spinach, goji and quinoa are good sources of oxyprenylated umbelliferone and ferulic acid derivatives.

Keywords:

Chenopodium quinoa, *Lycium barbarum*, *Spinacia oleracea*, Nutraceutical, Oxyprenylated phenylpropanoids