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Functional activity of extracts from Goji berries (*Lycium barbarum*)

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Lycium barbarum is a woody perennial plant that produces a berry commonly known as Goji. This fruit has been used for centuries in traditional Chinese medicine to control/prevent several diseases, and is also associated with longevity [1,2]. Currently, and mainly due to their antioxidant properties, Goji berries caught the attention of the Western food industry, since antioxidants can protect cells against damage effects caused by free radicals.

Goji berries can be eaten fresh or dried, alone or in various culinary uses. Most of the commercially available Goji berries in Western countries are dried, because such procedure increases durability and facilitates transportation. Nevertheless, several compounds of interest may suffer numerous modifications during the drying process, e.g. degradation of heat-sensitive chemicals and losses of volatile compounds; on the other hand, other components may increase their concentration.

The present study aims to investigate the differences in biological properties of dried Goji berries commercially available. As the selection of extraction methodologies is of extreme importance especially when it concerns the achieving of compounds of interest with functional properties, a method combining the use of microwaves and solvents was exploited, in order to obtain bioactive compounds available for the pharmaceutical and nutraceutical industries.

A response surface methodology obtained from a multivariate study was used to investigate the performance of the extraction procedure, to study the relevance of the variables required in extraction and to determine the final optimal settings. Results revealed that temperature is of utmost importance during extraction process, whereas time and the polarity of the extracting solvent presented a decreased degree of influence.

References:

[1] Pang, G., Xie, J., Chen, Q. and Hu, Z. (2012) *How functional foods play critical roles in human health*, Food Science and Human Wellness, 1, 26-60.

[2] Jin, M., Huang, Q., Zhao, K. and Shang, P. (2013) *Biological activities and potential health benefit effects of polysaccharides isolated from Lycium barbarum L.* International Journal of Biological Macromolecules, 54, 16-23.

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