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ABSTRACT BOOK

Comparative Study of Antioxidant Properties of Different Green Tea Formulations

Ana L. Morais^{1,2}, João C.M. Barreira^{1,2}, M. Beatriz P.P.² Oliveira and Isabel C.F.R. Ferreira¹

¹ CIMO-ESA, Instituto Politécnico de Bragança, *Campus* de Santa Apolónia, Apartado 1172, 5301-854 Bragança, Portugal.

² REQUIMTE/Departamento de Ciências Químicas, Faculdade de Farmácia da Universidade do Porto, Rua Aníbal Cunha, 164, 4099-030 Porto, Portugal.

Tea, a product made up from leaf and bud of the plant *Camellia sinensis* is, after water, the most consumed drink in the world. Particularly, green tea, a “non-fermented” tea (produced by drying and steaming the fresh leaves to inactivate the polyphenol oxidase and thus, non oxidation occurs) has been related to different health benefits such as reduction in the risk of cardiovascular disease and some forms of cancer, and neuroprotective power, as well as other disorders related to oxidative stress. Moreover, it was suggested the ability of green tea, when consumed within a balanced controlled diet, to improve overall the antioxidative status and to protect against oxidative damage in humans [1].

In the present work, different formulations of green tea obtained in a local supermarket were used: green tea bags (F1); green tea leaves (F2); soluble green tea (F3a and F3b); green tea liquid extract (F4). The teas were prepared according to manufacturer information, including infusions (F1- 75 °C, 5 min; F2- 75 °C, 3 min), or solubilisation (F3a- 75 °C; F3b- 21 °C; F4- 21 °C). The antioxidant properties were evaluated through several chemical and biochemical *in vitro* assays: DPPH (2,2-diphenyl-1-picrylhydrazyl) radical scavenging activity, reducing power (RP), inhibition of β -carotene bleaching, and inhibition of lipid peroxidation in brain tissue by formation of thiobarbituric acid reactive substances (TBARS) [2]. The DF_{50} (dilution factor responsible for 50% of antioxidant activity, or 0.5 of absorbance, in the case of RP assay) values were calculated for all the methods in order to evaluate and compare the antioxidant efficiency of the different formulations.

Some differences were observed among the antioxidant activities of the tested green tea formulations. The best results were observed for green tea liquid extract: $DF_{50(DPPH)} = 151 \pm 10$; $DF_{50(RP)} = 203 \pm 1$; $DF_{50(\beta\text{-carotene})} = 18 \pm 2$; $DF_{50(TBARS)} = 408 \pm 48$.

This work might be useful in the definition of the best green tea formulation, considering the health benefits of this highly consumed beverage.

References:

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