

XXII Encontro Nacional SPQ



SOCIEDADE
PORTUGUESA
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100 ANOS

100 anos
de Química
em Portugal



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In vitro antioxidant capacity of commercial dietary supplements

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Consumption of food rich in natural antioxidant compounds has been linked to a reduced risk of developing chronic oxidative stress-related diseases, including cancer and cardiovascular and neurodegenerative diseases. This therapeutic potential of antioxidants has led,

Table 1. Composition of the Commercial Dietary Antioxidant Supplements

Sample	Composition
A	Vitamins A, C, and E, selenium (as selenium yeast), polyphenols (VitaBerry plus), sulphoraphane, and others
B	Resveratrol (<i>Polygonum cuspidatum</i> roots)
C	<i>Coffea arabica</i> (seed)
D	Vitamin C, green tea powder (leaves), rosemary powder (leaves), vitamin E (50%), grape (aqueous extract), propolis (ethanolic extract), <i>Pinus albicaulis</i>
E	Vitamin C (13.9%), <i>Lycopersicon esculentum</i> (tomato fruit) 6.9%; <i>Ginkgo biloba</i> (leaves) 6.9%; vitamin E 5.6%, <i>Camelia sinensis</i> (leaves) 1.9%, β -carotene 0.7%; vitamin A 0.083%, and others
F	Lacto-Lycopene TM , soy isoflavones, vitamin C

in recent years, to a dramatic growth of the market of functional foods and dietary supplements (DS) claiming "antioxidant power", and to the widespread consumption of these products. In this work, the *in vitro* antioxidant activity (AA) of 6 DS (capsules/tablets), obtained from local markets, was determined by four different assays: scavenging activity against 1,1-diphenyl-2-picrylhydrazyl (DPPH) radicals, reducing power (RP), inhibition of lipid peroxidation using thiobarbituric acid reactive substances (TBARS) and β -carotene-linoleate model systems. Results are expressed as EC₅₀ (sample effective concentration responsible for 50% AA or 0.5 RP; expressed in μ g per ml of water). The AA of supplements varied largely, in all systems tested. EC₅₀ values varied between 44 (A) and 658 (B) μ g/ml, according to RP method, from 206 (D) to 1570 (B) μ g/ml in the DPPH scavenging method, and between 47 (A and D) and 2797 (F) μ g/ml according to TBARS assay. Furthermore, samples A, D, E, and F showed pro-oxidant activity in the β -carotene-linoleate system, probably due to the presence of vitamin C. Overall, supplements A and D revealed the highest antioxidant activity (lowest EC₅₀ values) and proved to be adequate for using as sources of health benefits.

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