

Radical scavenging activity and lipid peroxidation inhibition of almond, chestnut and their by-products: A comparative study**S8
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Disruption of the balance between reactive oxygen species (ROS) production and elimination leads to oxidative stress. ROS are known for being implicated in many cell disorders and in the development of many diseases including cardiovascular diseases, cancer, atherosclerosis, cataracts, chronic inflammation or neurodegenerative diseases. Some of these diseases seem to have the same underlying mechanisms, depending on oxidative processes leading to products with reactive properties, affecting specific molecular targets in the vascular system, and cellular DNA.¹ To find new natural sources of bioactive compounds, the antioxidant properties of almond green barks and fruits, chestnut skins, leaves and fruits, were evaluated through chemical and biochemical assays: 2,2-diphenyl-1-picrylhydrazyl radical scavenging activity, reducing power, inhibition of β -carotene bleaching, inhibition of oxidative hemolysis in erythrocytes induced by 2,2'-azobis(2-amidinopropane) dihydrochloride and inhibition of lipid peroxidation in brain tissue (formation of thiobarbituric acid reactive substances).

Our research group had already studied these assays as models for the peroxidative damage in biomembranes.² However, few studies reporting the indicated chestnut and almond by-products antioxidant potential are available. Hence, the evaluation of such properties is an interesting and valuable task, particularly to find new sources for natural antioxidants, functional foods or nutraceuticals.

In this work, the EC₅₀ values were calculated for all the methods in order to evaluate the antioxidant efficiency of each product. The obtained results revealed great antioxidant properties for chestnut and almond by-products (EC₅₀ < 0.4 mg/mL). Total phenols (> 200 mg GAE/g) and total flavonoids (> 50 mg CE/g) proved to be correlated with the antioxidant activity.

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