Antioxidant activity of almond seed extract and its fractions.

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Abstract:
In this study, phenolic compounds were extracted from defatted almond seeds using 80% aqueous acetone, and the crude extract was applied onto a Sephadex LH-20 column. Fraction I consisting of low-molecular-weight phenolics was eluted from the column by ethanol. Fraction II consisting of tannins was obtained using water-acetone (1:1, v/v) as the mobile phases. Phenolic compounds present in the crude extract and its fractions showed antioxidant and antiradical properties as revealed following studies using a b-carotene-linoleate model system, total antioxidant activity (TAA) method, 2,2-diphenyl-1- picrylhydrazyl (DPPH) radical scavenging activity and reducing power evaluation. Results of these assays showed highest values when tannins (fraction II) were tested. The content of total phenolics in fraction II was the highest (80.4 mg/g). The content of tannins in this fraction determined using the vanillin method and expressed as absorbance units at 500 nm per 1 g was 2436. The high-performance liquid chromatography (HPLC) analysis of almond seed crude extract showed the presence of phenolic compounds, namely vanillic, caffeic, p-coumaric, ferulic acids (after basic hydrolysis), quercetin, kaempferol and isorhamnetin (after acidic hydrolysis), delphinidin and cyanidin (after n-butanol-HCl hydrolysis) and procyanidin B2 and B3.