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Title: Phenolic Composition and Antioxidant Properties of Some Spices

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Abstract: Aqueous methanolic extracts of 9 spices were investigated for their phenolic compounds composition and antioxidant properties. The spices investigated were, *Laurel noblis* (bay leaves), *Rosmarinus officinalis* (rosemary), *Salvia officinalis* (sage), *Origanum marjorana* (marjoram), *Origanum vulgare* (oregano), *Cinnamomum zeylanicum* (cinnamon), *Petroselinum crispum* (parsley), *Ocimum basilicum* (sweet basil) and *Mentha peperita* (mint). The phenolic compound contents were determined by the Folin Ciocalteu, tannin binding assay and High Performance Liquid Chromatography (HPLC). The antioxidant properties were determined by the reducing power assay, radical scavenging assay and the α -carotene linoleic acid model system. Oregano had the highest total phenolic compound concentration of 15.83 mg GAE gG^{-1} and cinnamon had the highest polyphenolic compound concentration of 13.66 mg GAE gG^{-1} . Marjoram had the highest proportion of simple phenolic compounds of 95.57%. Ascorbic acid was used as a control in all the antioxidant assays. At 25 mg mLG^{-1} cinnamon and oregano recorded a high reducing power activity with absorbance of 0.12, while parsley had the lowest activity with absorbance of 0.075 at 655 nm. Cinnamon and marjoram had the highest radical scavenging activities of 92.0 and 91.3% respectively while at a concentration of 5 mg mLG^{-1} , parsley had the least radical scavenging activity of 47.90%. Cinnamon and oregano had the highest antioxidant activities of 61.76 and 58.28%, respectively while sweet basil had the lowest activity of 6.67%. Most of the spices showed better antioxidant properties than ascorbic acid. HPLC analysis detected gallic acid, protocatechuic acid, p-hydroxybenzoic acid, p-hydroxybenzaldehyde, vanillic acid, caffeic acid, p-coumaric acid and ferullic acid in the studied spices.

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