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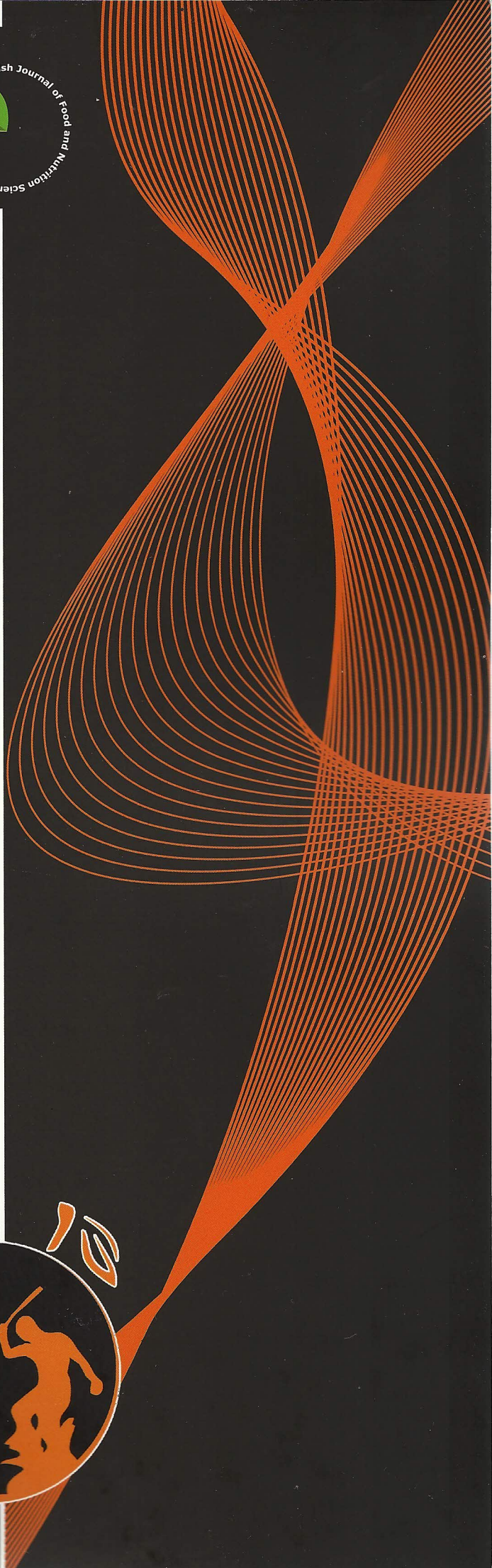
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P98

Evaluation of Polyphenols and Antioxidative Activity of Cocoa and Chocolate Products

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Key words: cocoa, chocolate, polyphenols, antioxidant activity

There is a growing interest in the food industry and in preventive health care in the evaluation of natural antioxidants from plant materials. Cocoa and cocoa products, especially chocolates, are extraordinarily popular consumer goods. They had been identified as a rich source of dietary polyphenols which gained much interest recently due to its antioxidant capacity and its health benefits with a major focus on degenerative diseases. In this study, cocoa powder and various chocolate products with different cocoa fractions ranging between 32% and 85% were analyzed in regard to their content of polyphenol compounds and antioxidant properties.

Cocoa and chocolate products which were manufactured in Austria were defatted and extracted with 80% methanol. The obtained extracts were analyzed for their content of total polyphenols, flavonoids, catechins and proanthocyanidins by standardized photometric methods. The antioxidant activities were determined with the DPPH[•] radical scavenging method and expressed as Inhibitory Concentration IC₅₀ as well as with the ABTS-radical assay in terms of their Trolox Equivalent Antioxidant Capacity TEAC.

In the different cocoa and chocolate products the content of total polyphenols was determined in the range of 3.2 to 23.1 mg/g with the highest amounts in cocoa powder followed by the different chocolate products in the order of their cocoa fraction percentage. The same trend was observed regarding their content of flavonoids (0.4–7.9 mg/g), catechins (0.7–2.6 mg/g) and proanthocyanidins (0.7–3.1 mg/g). All the cocoa and chocolate products showed considerable antioxidant activity in correlation to the content of polyphenol compounds with TEAC-values of 21–396 $\mu\text{mol TE/g}$ according to their cocoa fraction percentage.

The results of this study indicate that cocoa and chocolate products are a major source of dietary antioxidants and consumption of these products offer a potential beneficial impact in maintaining and promoting human health.

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