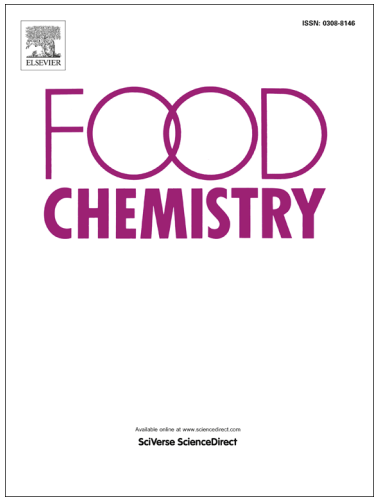

Change of phenolics, carotenoids, and antioxidant capacity following simulated gastrointestinal digestion and dialysis of selected edible green leaves

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Change of phenolics, carotenoids, and antioxidant capacity following simulated gastrointestinal digestion and dialysis of selected edible green leaves

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Abstract

The bio-accessibility of phenolics, flavonoids, rutin, β-carotene and lutein and changes in antioxidant activities in six edible greens during simulating gastro-intestinal conditions has been investigated. It was found that the amount of dialysable phenolics, flavonoids and carotenoids which potentially available for further uptake is varying depending on the leafy type. Bioavailable phenolics after the gastric-phase, intestinal-phase and in dialysable fraction were in the ranges of 13.9-71.8%, 14.4-77.4% and 3.1-12.3% respectively when compared with their fresh leaves. Total antioxidant capacities in the dialysable fractions were significantly lower than their original. Bioactives of *Centella asiatica* showed comparatively higher bioavailability in all phases with respect to its original content. β-carotene seems more dialysable than lutein in all leaves studied. Higher rutin contents were found in both gastric and intestinal phases than in fresh leaves. These results highlighted that gastrointestinal digestion may substantially affect the absorption of polyphenols and carotenoids present in leafy greens.

Keywords: polyphenols; carotenoids; green leafy vegetables; simulating gastro-intestinal conditions; Bioavailability

1. Introduction

Various epidemiological studies have shown that the high intake of fruits and vegetables has been associated with a lower incidence of chronic diseases such as cardiovascular diseases and cancer. It is now widely accepted that these potentially beneficial effects of fruits and