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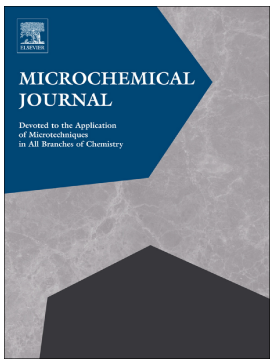

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Determination of ascorbic acid and its Influence on the bioavailability of iron, zinc and calcium in Fijian food samples

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Abstract

The total content of ascorbic acid (AA) determined in selected Fijian foods from different food groups of cereals [long grain rice, brown rice, white bread, wholemeal bread, weet-Bix, oats and flours], pulses [yellow split, black eye beans, chickpea, green gram/moong whole, bengal gram/chana dal, spilt red gram/toor dal, blue peas, red kidney beans], poultry/meat products [chicken breast, lamb chops, fish and egg] and dairy products [milk powders and cheese] was in the range 24.54±1.37 to 1.87±0.69. Further, the influence of AA on the bioavailability of Fe, Zn and Ca was determined using *in vitro* gastrointestinal digestion method by addition of (5 or 10 mg) AA in 2 g food sample. Pulses showed low content of AA whereas green leafy vegetables showed high content but AA was not detected in cereals, poultry/meat and dairy products. Our study confirmed that AA in chickpea reduced Fe bioavailability from 38.69 to 22.17% but increased in red kidney beans from 1.04 to 11.57%, in green gram (whole moong) 1.79 to 6.48% and wholemeal bread 2.44 to 8.76% whereas bioavailability of Zn and Ca was increased.

Keywords:

Ascorbic acid; Bioavailability; Calcium; Iron; Zinc. *In vitro* technique

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