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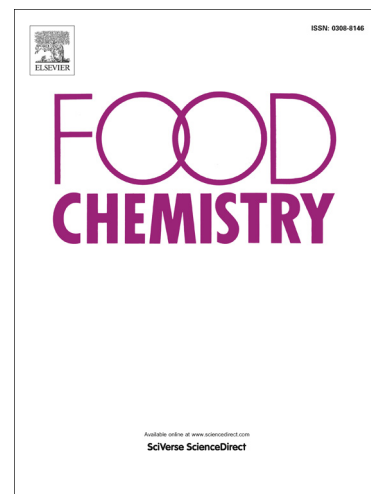
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1 Enzymatic hydrolysis of phytate and effects on soluble oxalate concentration in foods

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5 **Abstract:**

6 Soluble oxalate in foods is major concern for kidney stone formers due to its tendency to
7 increase urinary oxalate concentration. Phytate forms complexes with cations, which increases
8 soluble oxalate by making cations unavailable to precipitate oxalate. Thus, in order to reduce
9 soluble oxalate, bran samples (wheat, oat and barley) and bean samples (red kidney bean and
10 white bean) were treated with phytase. Release of phosphate after phytate degradation and its
11 association with calcium was determined. Phosphate concentration increased after application of
12 phytase in all samples, but effect on soluble oxalate concentration varied. Wheat and oat bran
13 showed significant reduction ($P < 0.05$) in soluble oxalate compared to bean samples. Wheat bran,
14 oat bran and white bean had a lower calcium: phosphate ratio than barley bran and red kidney
15 beans. Correlation of the calcium: phosphate molar ratio with release of phosphate depends on
16 concentration of calcium ions and this influences soluble oxalate concentration.

17
18 **Key words:** Soluble oxalate, phytate, enzyme hydrolysis, phytase, kidney stones

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