

Potential prebiotic properties of almond (*Amygdalus communis L.*) seeds.

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Abstract:

Almonds are known to have a number of nutritional benefits, including cholesterol lowering effects and protection against diabetes. They are also a good source of minerals and vitamin E, associated with promoting health and reducing the risk for chronic disease. In this study we investigated the potential prebiotic effect of almond seeds in vitro using mixed faecal bacterial cultures. Two almond products, finely ground almonds (FG), and defatted finely ground almonds, (DG), were subjected to a combined model of the gastrointestinal tract which includes in vitro gastric and duodenal digestion, and the resulting fractions were subsequently used as substrates for the colonic model to assess their influence on the composition of gut bacteria and their metabolic activity. FG significantly increased the population of bifidobacteria and Eubacteria rectale, resulting in a higher prebiotic index (4.43) compared with the commercial prebiotic fructo-oligosaccharides (4.08) at 24 h incubation. No significant differences in the proportions of gut bacteria groups were detected in response to DG. The increase in Eubacteria rectale numbers during fermentation of FG correlated with increased butyrate production. In conclusion, we have shown that FG has beneficial effect on the human microflora and the presence of almond lipid influenced the growth of gut bacteria.