In vitro evaluation of the prebiotic properties of almond skins (*Amygdalus communis* L.).

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Abstract:
In this study we investigated the potential prebiotic effect of natural (NS) and blanched (BS) almond skins, the latter being a byproduct of the almond-processing industry. A full model of the gastrointestinal tract, including in vitro gastric and duodenal digestion, followed by colonic fermentation using mixed faecal bacterial cultures, was used. Both NS and BS significantly increased the population of bifidobacteria and Clostridium coccoides/Eubacterium rectale group, resulting in a prebiotic index (3.2 for BS and 3.3 for NS) that compared well with the commercial prebiotic fructo-oligosaccharides (4.2) at a 24-h incubation. No significant differences in the proportion of gut bacteria groups and in short-chain fatty acid production were detected between NS and BS, showing that polyphenols present in almond skins did not affect bacterial fermentation. In conclusion, we have shown that dietary fibre from almond skins altered the composition of gut bacteria and almond skins resulting from industrial blanching could be used as potential prebiotics.