

Title In vitro digestibility and intestinal fermentation of grape seed and peel  
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### **Abstract**

Grape seed and peel are increasingly being used to obtain functional food ingredients such as natural antioxidants and dietary supplements. The indigestible fraction constitutes the bulk of grape peel and seed (about 80% dry matter). This fraction is neither digested nor absorbed in the small intestine and reaches the colon, where it provides a substrate for fermentative microflora. The objective of this work was to determine the extent of colonic fermentation of grape peel and seed constituents and to evaluate the potential digestibility and bioavailability of their main components (dietary fiber, protein and polyphenols) in the gastrointestinal tract. The extent of fermentation, expressed as per cent disappearance of organic matter (DOM), was similar for the two grape materials (about 32%). The intestinal microflora degraded 95–97% of total polyphenols, 30–32% of dietary fiber and 60–70% of protein in both seed and peel. Total production of short chain fatty acids and molar proportions (acetic:propionic:butyric, 59:27:14) were similar for the two samples. It was estimated that about 25% of grape seed and peel was degraded into the colon, being 50% unavailable in the gastrointestinal tract.