



Dual amylase/glucosidase inhibition, antilipolytic and antiproliferative potential of the aerial parts of *Pistacia atlantica*, *Pistacia lentiscus* and *Pistacia terebinthus* on a obesity related-colorectal cancer cell line panel

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Abstract	<p><i>Pistacia</i> species (<i>P. spp</i>) have been used as a treatment for various diseases, including diabetes and inflammation. This study aimed to identify the main components of flavonoids in <i>Pistacia</i> species and evaluate the effect of aqueous extracts of <i>P. spp</i> on pancreatic enzymes and on cancer cells associated with obesity in colon and rectum. HPLC was used to identify the major components of flavonoids. The potent inhibitory effect of <i>Pistacia</i> species against pancreatic alpha-amylase, alpha-glucosidase and lipase was examined. The antiproliferative efficacy of the plant extract against several colorectal cancer cell lines were then measured. The main flavonoids component found in <i>Pistacia</i> species are quercetin-3-beta-D-glucoside, rutin, kaempferol and vitexin. The starch blockade IC50 ($\mu\text{g/mL}$) of <i>Pistacia</i> species in a descending order were: <i>P. lentiscus</i> leaves: 1.09 +/- 0.01; <i>P. atlantica</i> leaves: 0.96 +/- 0.09 and <i>P. atlantica</i> fruits: 0.48 +/- 0.02. <i>Pistacia</i> species exerted promising inhibition effect for pancreatic lipase (PL). Besides the aglycones of <i>P. atlantica</i> leaves, all the tested aqueous extracts exerted appreciably novel antiproliferative activity against the tested colorectal cancer cell lines. This study provides useful indication for the <i>Pistacia</i> species as a potential novel therapeutic agent against diabetes and cancer.</p>
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