

**Title:** Antioxidant and anti-browning activity of different bioactive compounds

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**Abstract body:** Enzymatic browning in fruits and vegetables causes significant losses due to its negative effects on colour, taste, flavour and nutritional value. This physiological disorder is mainly due to the oxidation of natural phenolic compounds into quinones that are polymerized to brown pigments by polyphenol oxidase (PPO). Partial control of this disorder can be obtained with the application of antioxidants, which can reduce back the reactions catalysed by browning enzymes, and thus, inactivate them (Di Guardo et al., 2013; Macheix, Fleuriot, & Billot, 1990). There is a rising interest in natural antioxidants as bioactive components of foods. Thus, in this study it was investigated the antioxidant activity of a total of 25 natural extracts (from vine, strawberry tree, elder flower, pear, apple, bitter melon, olive tree, potato plant, brewer yeast, soy protein and sheep whey protein) enriched with phenolics, triterpenic acids and amine groups and 17 of pure chemical compounds found within a number of natural substances (rutin, arbutin, catechin, caffeic acid, d-quinic acid, p-coumaric acid, quercetin, apigenic acid, malic acid, syringic acid, fumaric acid, vanillic acid, polyethylenimine, ellagic acid, triterpenic acids and chlorogenic acid) and ascorbic acid as control. The antioxidant activity was assessed by the ABTS method. It was also studied the inhibition of polyphenol oxidase via different extract application, employing cut pear disc treated with the different compounds. The present study demonstrated that leaves from vine had the best antioxidant activity ( $4.6329 \pm 0.0215$ ) from the natural extracts group and arbutin being the pure chemical compound with higher antioxidant activity ( $15.0889 \pm 0.0032$ ). Arbutin was also the most effective compound in suppressing the activity of PPO enzyme compared to ascorbic acid. Regarding the group of natural extracts, it is important to highlight the inhibitory effect of olive leaves on PPO activity. The present report has practical implications in generating novel natural extracts with potential application as anti-browning agents.