

**Title** Effect of various inhibitors on enzymatic browning, antioxidant activity and total phenol content of fresh lettuce (*Lactuca sativa*)

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#### **Abstract**

In this study, polyphenol oxidase (PPO) was isolated from fresh lettuce. Its optimum temperature and pH were found to be 40 °C and 7.0, respectively. Lettuce PPO was shown to use catechin, catechol, chlorogenic acid, caffeic acid and gallic acid as substrates. Among the substrates used, the greatest substrate specificity was observed with chlorogenic acid. Lettuce PPO was sensitive to some inhibitors. Ascorbic acid, cysteine, oxalic acid and citric acid were tested as potential inhibitors of lettuce PPO. Cysteine was the most effective inhibitor. Total phenol and total antioxidant activity contents were also determined in the presence of these inhibitors at room and refrigerator temperatures. Ascorbic acid and cysteine increased the total antioxidant activity of lettuce while citric and oxalic acids had no effect on the total antioxidant activity. Lettuce phenolics were protected from oxidation by ascorbic acid and cysteine.