

**Title** Effects of antioxidative activities and anti browning to *Citrus unshiu* extracts in apple slices

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### Abstract

This study was carried out to investigate anti oxidative properties and antibrowning effect of distilled water and 80% EtOH extracts of citrus (*Citrus unshiu*) peel. They were measured for DPPH radical scavenging activities, total phenolic contents, total flavonoid contents, ferrous ion chelating capacity and inhibition of PPO activity of extracts. In addition, antibrowning effects of extracts in apple slices were investigated by L value. Apples were cut into 1.5cm thickness and were dipped in 1 % extract solutions (CW: distilled water extracts of citrus peel, CE: 80% EtOH extracts of citrus peel) for 1 min. And then they stored at room temperature during 24 hours. CE showed higher than CW for antioxidative activities such as DPPH radical scavenging activity (40.27%), total phenolic contents (47.96 mg/g), total flavonoid contents (83.79 mg/g), ferrous ion chelating capacity (24.22%). CW was slightly more effective of anti browning than CE. PPO inhibition of CW and CE were 57.33% and 49.37%, respectively. After 24 hours, L values of apple slices were 2.37 to CW and 2.63 to CE, whereas L values of apple slices were 74.27 to CW and 71.64 to CE. These results showed both distilled water and EtOH extracts of *Citrus unshiu* peels should be a potential source for controlling browning during storage of fruits and vegetables.