Abstract

Strawberries (Fragaria ananassa Duch.) fruits are valued by their antioxidant content; however, they are susceptible to fungal attack. A natural extract that has showed antimicrobial and antioxidant properties is cinnamon leaf oil (Cinnamomum zeylanicum) (CLO), which could be used to reduce fungal growth and increase the antioxidant content of strawberry. The effect of CLO treatments on fungal attack and antioxidant properties of strawberries was evaluated. Fungal decay index, total phenolic content, total flavonoid content, antioxidant capacity, odor and flavor acceptability of CLO-treated (Control, 0.0005, 0.0025, and 0.005 g mL-1) strawberry fruits were measured during 9 d of storage at 10 °C. A significant treatment effect (P < 0.05) on fungal decay was observed; 0.005 g mL-1 was the most effective concentration. This treatment also caused higher phenolics (78 %) and total flavonoids (35 %) content. These increments reflected on higher antioxidant capacity as measured by DPPH• (52 %), TEAC (32 %) and ORAC (25 %) techniques when compared to control fruits. Odor and flavor acceptability of control and CLO-treated fruits (0.0005 g mL-1) were moderately liked, strawberries treated with 0.0025 g mL-1 CLO were neither liked nor disliked, whereas those CLO-treated with 0.005 g mL-1 were moderately disliked. Therefore, CLO treatment is an alternative to avoid fungal decay and increase the antioxidant status of strawberry fruit, though it moderately affects acceptability.

Keywords

Fragaria ananassa, Botrytis cinerea, phenolic compounds, free radicals.