

Title Effect of Freezing and Frozen Storage on Phenolic Compounds of Raspberry and Blackberry Cultivars

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Abstract

The phenolic compounds in raspberry and blackberry cultivars grown in Turkey were determined by liquid chromatography–mass spectrometry (MS)/MS in fresh, just-frozen, and stored fruits at $-22\text{ }^{\circ}\text{C}$ for 6 months period. The major phenolic compounds in water extracted samples were ellagic acid (1,350.36–727.9 mg/kg fresh fruit), ferulic acid (820.78–338.27 mg/kg fresh fruit), caffeic acid (754.85–202.78 mg/kg fresh fruit), *p*-coumaric acid (361.68–142.63 mg/kg fresh fruit), *p*-hydroxybenzoic acid (534.20–233.29 mg/kg fresh fruit), and quercetin (46.97–27.31 mg/kg fresh fruit) in raspberry and ellagic acid (1,828.07–1,555.13 mg/kg fresh fruit), ferulic acid (757.69–413.82 mg/kg fresh fruit), caffeic acid (736.85–337.89 mg/kg fresh fruit), *p*-coumaric acid (877.45–287.15 mg/kg fresh fruit), and quercetin (74.69–56.78 mg/kg fresh fruit) in blackberry. The varietal differences in the phenolic compound contents were larger among the blackberry cultivars (from 1,828.07 to 56.78 mg/kg fresh fruit) than among the raspberry cultivars (1,350.36 to 27.31 mg/kg fresh fruit). A significant decrease was observed in the content of *p*-hydroxybenzoic acid (from 534.20 to 114.30 mg/kg; Aksu Kırmızısı) and the least decrease was in the content of caffeic acid (from 545.42 to 530.91 mg/kg; Heritage) in raspberry cultivars. On the other hand, ferulic acid (from 475.16 to 113.33 mg/kg) decreased significantly in blackberry (Bursa 2) after storage for 6 months.

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