

Stability of total phenolics and anthocyanins during storage of three types of black raspberry confections

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Berries are recognized for their health-promoting properties and roles in disease prevention. The major components in black raspberries that have been linked to chronic disease prevention are phenolic compounds, such as anthocyanins, proanthocyanidins and ellagitannins. Of these, anthocyanins are present in the highest quantity and have been studied for their role in prevention of heart disease, cancer and obesity. These phenolic compounds, however, are unstable during storage and can be easily degraded by factors such as temperature, sunlight, oxygen, and enzymes. Moreover, during long-term storage, the anthocyanins can undergo polymerization and form pigments, influencing the color of the products and their bioactivity. The objective of this study was to determine the effect of storage temperature (4°C and room temperature) and storage time (2 months) on the total phenolics and anthocyanins content as well as polymeric color of three different types of confections (pectin & starch based gummy and hard candy) containing 22% - 40% black raspberry freeze-dried powder. Total phenolics, anthocyanins and polymeric color were measured by dissolving three types of confections in water containing 5% folic acid using a spectrophotometric method according to established protocols. Starch confections retained the highest total phenolics and pectin confections appeared to have the most polymeric color during storage. Total phenolics were relatively stable through the two-month storage at both 4 °C and room temperature ($P>0.05$). Anthocyanins decreased during the first two-week storage ($P<0.05$) and remained stable through the whole storage period at both 4 °C and room temperature. The polymeric colors of all confections stored at room temperature continually increased ($P<0.05$) during storage while that confections stored at 4°C were stable ($P>0.05$). This study indicates polyphenols had highest stability at 4°C in starch confections during the two-month storage.