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Abstract

Live Poster Session

Major: Chemistry

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Comparison of Antioxidant Capacity in Wild and Commercial Raspberry (*Rubus idaeus*).

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Cancer and cardiovascular diseases have been linked to free radicals. Free radicals are molecules with unpaired electrons in their outer orbit resulting in their instability and reactivity. In large amounts free radicals can lead to the damage of essential macromolecules including DNA and proteins, which in turn disrupts homeostasis and can lead to cell death. However, antioxidants are compounds that neutralize free radicals. Raspberries have been found to contain bioactive compounds with antioxidant properties such as phenolic compounds and ascorbic acid. However, the antioxidant capacity between commercially grown and wild raspberries is unknown. Wild raspberries were harvested from Illinois (summer, 2019). Commercial raspberries were purchased from Walmart, Macomb, IL (January, 2020). Both cultivars were immediately freeze-dried after acquisition and ground into powder. Extracts were made using methanol with 1% HCl and the antioxidant capacity was determined using a 2,2'-azino-bis (3-ethylbenzothiazoline-6-sulfonic acid) ABTS assay. For this, a standard curve using known concentrations (0.09, 0.18, 0.36, 0.72, and 1.44 nM) of an antioxidant called Trolox was made. 5 μ L Trolox was mixed with 95 μ L ABTS and for 5 min, the antioxidant capacity was measured spectrophotometrically at 734 nm. To measure the antioxidant capacity in both the commercial and wild raspberry samples, 5 μ L extract was incubated with 95 μ L ABTS for 5 min, after which the absorbance at 734 nm was measured. The antioxidant capacity was calculated as Trolox equivalents (TE; μ mol/g dry weight) and statistically analyzed using a Student's t-test. The results showed no difference in the antioxidant capacity between commercially grown and wild raspberries.