Synopsis of the U of S Sour Cherry Constituents Report

In 2013, the University of Saskatchewan (U of S) investigated the levels of specific antioxidant families (Phenolics, Flavonoids, and Anthocyanins) and completed generalized antioxidant tests (FRAP, DPPH, and ORAC) of five of the U of S dwarf sour cherries (Carmine Jewel, Valentine, Cupid, Romeo, Juliet). Evans cherries, green grapes, raspberries, and frozen sweet cherries were included in the tests for comparative purposes.

Background definitions:

Oxidation is a natural process in the body that leads to free-radicals that can eventually cause diseases. Antioxidants reduce the damage from free-radicals (by remaining stable while donating electrons to neutralize the free-radical molecules).

Phenolics, are a family of antioxidants that play a protective role against oxidative-damage conditions such as coronary heart disease, stroke, cancer, and aging.

Flavonoids account for more than half of the over eight thousand different phenolic compounds. They are plant pigments that have antioxidant, anti-inflammatory, and antiviral properties. Flavonoids are thought to correct cell abnormalities associated with cancer development, improve the elasticity of artery walls to lower blood pressure, stimulate the breakdown of triglycerides in fat cells, and help maintain blood glucose levels.

Anthocyanins are a type of flavonoid found in the pigments of the outer cell layers of flowers, fruits, leaves, stems, and roots. They can decrease photo-oxidative injury, reduce heart disease, and relieve inflammation.

FRAP (Ferric Reducing Antioxidant Power) is a method for assessing “antioxidant capacity of foods that contain polyphenols.

DPPH (2,2-diphenyl-2-picrylhydrazyl) is a free-radical compound. used to measure of the amount of a food required to trap 50% of the DPPH free-radical ability. The lower the measure, the stronger its antioxidant ability

ORAC (oxygen radical absorbance capacity) is a method of measuring one type of antioxidant capacity in foods. Although a popular tool, in 2012 the USDA ruled the ORAC method, derived from in vitro (test tube) experiments, does not provide in vivo (in body) physiological proof to support the free-radical theory.

Summary:

While the tests were designed to measure the differences among the five U of S sour cherry varieties, the results indicate that they all scored high for total antioxidants and far better than the sweet cherries, raspberries and green grapes tested. The Evans cherries scored in the lower range of the U of S sour cherries.

The complete report will be available in the CCPI Member’s Area and on the Saskatchewan Government website. This study also lays a foundation for further research in this area, possibly leading to a human health studies.