SWEET CHERRY: A COMPARATIVE STUDY FOR PHYTOCHEMICALS, VOLATILES AND SENSORY CHARACTERISTICS OF TWELVE CHERRY CULTIVARS GROWN IN TURKEY

Ali A. Hayaloglu, Nurullah Demir

Inonu University, Food Engineering Department, 44280 Malatya, Turkey

Presenting author: nurullah.demir@inonu.edu.tr

Keywords: Sweet cherry; Prunus avium L.; volatiles; anthocyanins; antioxidant properties.

Introduction
Fruits are popular for human nutrition due to their nutraceutical and beneficial properties. Sweet cherry (Prunus avium L.) is one of the most desirable fruits. Sweet cherry has nutritious and bioactive compounds such as phenolics (especially anthocyanins), organic acids and sugars. Turkey is the main sweet cherry producer in the world. According to FAO (2015), sweet cherry production in Turkey is 494 325 metric tons, followed by USA, Iran and Italy in 2013.

Objectives
The objective of this study was to compare the physicochemical quality parameters including antioxidant activity, organic acid and sugar contents and textural properties, GC-MS volatile compounds and sensory characteristics of these twelve cultivars.

Material and Methods
This is the first study that is a comprehensive evaluation on physicochemical features including antioxidant activities, organic acid and sugar contents, phenolic, anthocyanin, volatile compounds by chromatographic methods and sensory characteristics of twelve sweet cherry cultivars grown in Malatya and Yalova provinces of Turkey. The cultivars including Belge, Bing, Dalbasti, Durona di Cesena, Lambert, Merton Late, Starks Gold, Summit, Sweetheart, Van, Vista and 0-900 Ziraat were harvested at commercial maturity level.

Results
Volatile compounds, phenolics and anthocyanins were significantly differed among the cultivars. Furthermore, sensory properties of the cherries varied with a correlation of physicochemical characteristics such as color, fruit dimensions and texture. These scores distinguished the cultivars including Belge, Bing, Dalbasti and Summit. Neochlorogenic acid and cyanidin-3-O-rutinoside were the main phenolic and anthocyanin compounds in all cultivars, respectively. The antioxidant capacity and surface color of these cherries were directly related by their total phenolics and total anthocyanins contents, except for yellow in color cherry (cv. Starks Gold). The most abundant organic acid and sugar were malic acid and glucose. Aldehydes were the principal group in volatiles following alcohols in all cherries. The most abundant volatiles were 1-hexanol, 2-hexen-1-ol (E), benzylalcohol, hexenal, 2-hexenal (E), benzaldehyde, ethyl acetate, ethylbutanoate, ethylhexanoate, l-limonene, linalool and hexanoic acid with regardless of cultivars.

Conclusions
In conclusion, significant differences were observed among the sweet cherry cultivars in terms of physical properties, chemical constituents and sensory characteristics. By this study, it was intended to inform consumers about health beneficial substances of sweet cherry cultivars.

References: