THE INFLUENCE OF MATURITY STAGE AND EXTRACTION SOLVENTS ON PHENOLIC CONTENT AND ANTIOXIDANT ACTIVITY OF THREE SWEET CHERRY CULTIVARS

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Abstract

The effects of two extracting solvents (70% acetone and 70% ethanol) and maturity stage (semi ripe and ripe) on the phenolic content and antioxidant activity of fruits of three sweet cherry cultivars (Burlat, New Star and Peter) were investigated. Results showed that extraction solvent did not have significant effects on total phenolics (TP), tannins (TT) and flavonoids (TF) content and antioxidant activity (1,2-diphenyl-2-picryl-hydrazyl (DPPH) assay, ferric-reducing antioxidant power (FRAP) assay, 2,2'-azinobis-(3-ethylbenzothiazoline-6-sulphonic acid (ABTS) assay, total antioxidant activity (TAA) by phosphomolybedenum complex formation method and reducing power (RP) assay) in dried fruits of sweet cherry. The results did not showed significant changes in phenolic content and antioxidant capacity of fruits during the ripening. Among the investigated sweet cherry fruits, Peter cultivar contained the highest amounts of all groups of phenolics, followed by Burlat and New Star. TP in fruits ranged from 10.90 (ripe New Star, ethanol extract) to 28.92 (semi ripe Peter, acetone extract) mg gallic acid equivalents (GAE)/g dry weight (DW). The highest amount of TF in fruits was detected in ethanol extract of semi ripe Peter cultivar (12.97 mg quercetin equivalents (QE)/g DW), while the lowest content was found in ethanol extracts of semi ripe New Star cultivar (7.80 mg QE/g DW). The examined cultivars possess a high antioxidant capacity, and all measured phenolic groups were highly correlated with performed antioxidant assays. The antioxidant activity values obtained with DPPH in the dry fruits (ranging from 7.68 to 13.29 mg trolox equivalents (TE)/ g DW) were comparable to those obtained with FRAP 3.69 to 13.28 mg TE/g DW).

Key words: antioxidant capacity, phenolics, sweet cherry