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Characterization of Caneberry Juices Enriched by Natural Antioxidants

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Abstract : Caneberries (raspberries and blackberries) are among the most popular berries in the world, which are consumed as fresh and processed to juice, jams, confitures and other products or as ingredients for different foods. These fruits are known as a rich source of phenolic compounds such as phenolic acids and anthocyanins. Antioxidant activity (AA) of caneberry juices was improved by addition of phenolic compounds which were extracted from two raspberry cultivars (Rubus idaeus, cv. 'Willamette' (RW) and 'Meeker' (RM)) and two blackberry cultivars (Rubus fruticosus, cv. 'Čačanka' (BC) and 'Thornfree' (BT)) pomace, a by-product in juice processing. The total phenolic contents in raspberry and blackberry pomace extracts were determined spectrophotometrically using the Folin-Ciocalteu reagens. The phenolic concentrations in caneberries (RW, RM, BC and BT) pomace extracts were 43.67 ± 2.13 mg GAE/g, 26.25 ± 1.18 mg GAE/g, 46.01 ± 3.26 mg GAE/g and 61.59 ± 1.14 mg GAE/g, respectively. In order to obtain enriched juices, phenolic compounds were applied at concentration of 0.05 mg GAE/ 100 ml. Antioxidant activities of caneberry juices and caneberry enriched juices were measured using stable 1.1-diphenyl-2-picrylhydrazyl (DPPH) radicals. AADPPH of RW, RM, BC and BT juices and enriched juices with addition of 0.01 µg GAE/ml, changed from 37.12% to 93.01%, 23.26% to 91.57%, 53.61% to 95.65% and 52.06% to 93.13%, respectively, while IC50 values of RW, RM, BC and BT juices and enriched juices were diminished 6.33, 19.00, 6.33 and 4.75 times, respectively. Based on the obtained results it can be concluded that phenolic enriched juices were significantly more effective on DPPH radicals. Caneberry juices enriched with waste material are a good source of natural pigments and antioxidants and could be used as functional foods.

Keywords : caneberry, enriched juice, phenolic antioxidant, DPPH radical
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