

Chemical Composition and Antioxidant Activity of Fresh Chokeberries

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Abstract : Substantial interest has been expressed in fruits and berries due to their potential favourable health effects and high content of polyphenols, especially flavonoids and anthocyanins. Chokeberries (*Aronia melanocarpa*) are dark berries, similar to blackcurrants, that have been used by native Americans both as a food resource and in traditional medicine for treatment of cold. Epidemiological studies revealed positive effects of chokeberries on colorectal cancer, cardiovascular diseases, and various inflammatory conditions. Chokeberries are well known as good natural antioxidants, which contain phenolic compounds, flavonoids, anthocyanidins and antioxidant vitamins. The aim of this study was to provide information on polyphenolic compounds present in fresh chokeberries as well as to determine its antioxidant activity. Individual polyphenolic compounds have been identified and quantified using HPLC/UV-Vis. Results showed that the most dominant phenolic acid was protocatechuic acid (274.23 mg/100 g FW), flavonoid rutin (319.66 mg/100 g FW) and anthocyanin cyanidin-3-galactoside (1532.68 mg/100 g FW). Generally, anthocyanins were predominant compounds in fresh chokeberry (2342.82 mg/100 g FW). Four anthocyanins have been identified in fresh chokeberry and all of them were cyanidin glycosides. Antioxidant activity was determined using spectrophotometric DPPH assay and compared to standard antioxidant compound vitamin C. The resulting EC50 value (amount of fresh chokeberries that scavenge 50% of DPPH radicals) is 0.33 mg vitamin C equivalent/100 g FW. The results of this investigation provide evidence on high contents of phenolic compounds, especially anthocyanins, in chokeberries as well as high antioxidant activity of this fruit.

Keywords : chokeberry, polyphenols, antioxidant, DPPH radicals

Conference Title : ICABBBE 2015 : International Conference on Agricultural, Biotechnology, Biological and Biosystems Engineering

Conference Location : Rome, Italy

Conference Dates : May 05-06, 2015