ANALYSIS OF CHEMICAL COMPONENTS OF THE DIFFERENT PARTS OF ARONIA BERRY GROWN IN OHIO

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Aronia berry or black chokeberry, *Aronia melanocarpa* (Michx.) Elliott (Rosaceae), is a shrub native to North America, of which the fruits (Aronia berries) are used widely in the food industry. Aronia berries show multiple bioactivities, and their chemical components have been investigated extensively. However, phytochemical investigations for other parts of this bush seems to be limited. Our previous investigations demonstrated that a chloroform-soluble extract of Aronia berries collected in Ohio exhibited was cytotoxic against a small panel of human cancer cells, and one of these active components, ursolic acid, exhibited cytotoxicity toward MDA-MB-231 human breast cancer cells and inhibitory effects on NF-κB p65 and mitochondrial transmembrane potential. In the present investigation, a dried powder of each of the stems, twigs, leaves, and flowers and the frozen fresh fruits of Aronia berry were extracted with ethanol followed by dichloromethane (DCM). The DCM-soluble extracts have been tested by LC-MS techniques, using U3000 Cap-LC system from Dionex equipped with Thermo Scientific QE Plus mass spectrometry in a positive mode. The results showed that overview of the chemical component profiles varied in the different plant parts, and the compound numbers detected decreased in the sequence leaves, twigs, stems, flowers, and fruits. The peak at the retention time (RT) 22.79–22.80 min determined as usolic acid (UA) appeared in all of the samples tested, but its relative abundance was found to increase in the sequence fruits, stems, leaves, flowers, and twigs. Our data indicate that all parts of Aronia berry investigated contain ursolic acid, of which the content in twigs or flowers is greater than that in fruits. The secondary metabolites of the twigs and leaves are similar, and they are more numerous than those observed from other parts of Aronia berry. These results support the development of Aronia berry as a useful product to benefit human health.

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