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# BOOK OF ABSTRACTS

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# E-PP23. INFLUENCE OF THE EXTRAGENT ON THE EXTRACTION OF POLYPHENOLS AND ANTHOCYANINS FROM BLACK CHOKEBERRY (*ARONIA MELANOCARPA*) FRUITS

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**Introduction:** Black chokeberry (*Aronia melanocarpa)* is among the richest sources of polyphenols among fruits. It is particularly rich in proanthocyanidins, anthocyanins and hydroxycinnamic acids, whereas flavonols and flavan-3-ols are present as minor components.[1-2] Nowadays, black chokeberry is cultivated as an industrial crop and is valuable source for production of jams, wines, syrups, functional foods and food supplements. Increased interest in chokeberries requires reliable and reproducible protocols for sample handling and analysis. Extraction process is an important step in analyzing bioactive components in plants. The chemical structure of polyphenols found in plant matrix ranges from single molecules to highly polymerized structures, and they may exist either as aglycones or glycosides. For this reason, it is necessary to optimize the extraction process for each plant matrix and proper choice of extragent is a crucial factor for the analytical protocol.[3] The aim of the study was to investigate the influence of different extragents on the amount of the extracted polyphenols and anthocyanins from fresh or freeze dried chokeberries.

**Materials and Methods:** Aronia fruits were supplied from local growers in the stage of full maturity, in august 2017. Fresh fruits were put in polyethylene bags, frozen immediately and stored at - 18°C until analyzed, whereas 200 g chokeberries were freeze dried in a laboratory freeze dryer. Frozen berries were defrosted and homogenized in a laboratory blender, whereas freeze dried berries were pulverized to powder prior to analysis. Fruit mash (2 g) or dry powder (0.5 g) were mixed with 40 ml of the extragent - methanol, ethanol or acetone at different concentrations (20%, 40%, 60% and 80%). Each extragent was acidified with 0.5% formic acid. Samples were extracted on a magnetic stirrer, for one hour at room temperature. Supernatants were removed, centrifuged and analyzed for polyphenol and anthocyanin content.

**Results and Conclusions:** Used extragents differed significantly in their extracting ability of polyphenols and anthocyanins from fresh fruit. The highest amount of anthocyanins was extracted using 40% methanol (355.9 mg/100 g FW) and 60% (345.9 mg/100 g FW) ethanol, with no statistically significant difference between two results. 60% acetone was the best extragent for polyphenol substances, which is most likely associated with the increased extraction of condensed tannins. In regards to freeze dried berries, 60% ethanol was the best extragent of anthocyanins – 1214 mg/100g DW and 60% acetone for polyphenol compounds 5363 mg/100g DW.

**Keywords:** black chokeberry (*Aronia melanocarpa*), extraction, polyphenols, antocyanins

**References**

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