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The influence of drying method on chemical composition and health promoting properties of hokeberrypomace

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Chokeberry or aronia has origins in North America. Aronia fruits are characterized by a high biological and nutritional value. The food industry mainly produces aronia juices and syrups. Therefore it is important to pay attention on aronia pomace as source of many important bioactive compounds in diet. The aim of study was to evaluate the influence of drying method on chemical composition and health promoting properties of chokeberry pomace. Current investigation has been supported by the National research programme AgroBioRes. Experiments were performed in Latvia University of Agriculture, Faculty of Food Technology. The pomace was dried in different dryers – freeze dryer, microwave-vacuum and hot air dryer (two temperature: +40 and +60 °C). The biochemical composition (total phenols and total anthocyanin content, vitamin C, total carotenes, antiradical activity (DPPH)) and the content of moisture were determined for frozen and dried chokeberry pomace. The stability of carotenoids reduced in the influence of heat and the fastest decreasing was detected in microwave-vacuum and hot air drying at 40 ° C – decrease by 50–52%. The carotenoid content of freeze-dried samples was 22.59 mg 100 g-1 dry matter. The greatest loss of anthocyanins in chokeberry pomace was observed using convective drying at 60 °C (anthocyanin content was 651.15 mg 100 g-1 dry matter). The highest anthocyanin content was observed after freeze-drying. Using microwave-vacuum drying losses were also relatively little - anthocyanin content remained 1345.14 mg 100 g-1 dry matter. All drying methods reduced the phenol content of the pomace. The highest phenol content compared to other drying methods remained in freeze dried pomace (6239.75 mg GAE 100 g-1 dry matter). Ascorbic acid is very sensitive to the temperature, therefore its content in hot air dried pomace decreased significantly. The freeze dried pomace preserved the highest amount of ascorbic acid – 65.71 mg 100 g-1 dry matter.

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