

OPTIMIZING OF EXTRACTION OF BIOACTIVE COMPONENTS FROM SEA BUCKTHORN (*HIPPOPHAE RHAMNOIDES* L.) POMACE AND DEVELOPE OF ANTIOXIDANT-ENRICHED APPLE JUICE

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Abstract

The food waste is a critical subject in every industry, in every household; but in many cases by-products should not be considered as waste. In our study, we were looking for an alternative to the use of sea buckthorn pomace to open new opportunities for the food industry. The chosen cultivar, Ascora is from Hungary, these sea buckthorn contain high biological activity components, primarily polyphenols, flavonols which compounds are known to have potential antioxidant properties. The dried pomace was extracted in a different method to achieve the highest antioxidant content. Ethanol and acetone were used as solvents, applied in different concentration: 20 m/m % and 40 m/m %. After the centrifugation, the solvents were removed and replaced with water. For the selection of the optimum extraction method, various spectrophotometric measurements were performed, which included the ferric reducing ability of plasma antioxidant capacity (FRAP) method, 1,1-diphenyl-2-picrylhydrazyl assay (DPPH), trolox equivalent antioxidant capacity method (TEAC) and determined of total polyphenol content. With the best extract, three types of apple juice were made from apple juice concentrate by diluting it with different percentages of water and pomace extracts. The above-mentioned spectrophotometric measurements were also performed for the prepared drinks in order to check the increase in amount of antioxidant components in the apple juice. Acceptability of enriched juices was determined by sensory evaluation and short market research. On the basis of the results the optimum extraction agent is 40 m/m % acetone for enriching apple juice. The results of the market research showed that there is a demand for the consumption of enriched juice with sea buckthorn pomace extracts. According to the sensory analysis, fruit juice enriched with the 1:1 ratio of extract: water mixture is the most optimum according to evaluators. Further examination could reveal whether the extracted antioxidant content of the pomace could be used as bio-preservatives in the food industry.

Key words: sea buckthorn, pomace, apple juice, antioxidant