Physicochemical properties, fatty acid composition, volatile compounds of blueberries, cranberries, raspberries, and cuckooflower seeds obtained using sonication method

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Every year, thousands of tons of fruit seeds are discarded as agro-industrial by-products around the world. Fruit seeds are an excellent source of oils, monounsaturated fatty acids, and n-6 and n-3 polyunsaturated essential fatty acids. This study aimed to develop a novel technology for extracting active substances from selected seeds that were obtained after pressing fruit juices. The proposed technology involved sonification with the use of ethyl alcohol at a low extraction temperature. Seeds of four species—blueberry (Vaccinium myrtillus L.), raspberry (Rubus idaeus), cranberry (Vaccinium macrocarpon), and cuckooflower (Cardamine pratensis)—were used for extraction. Following alcohol evaporation under nitrogen, the antioxidant activity, chemical composition, and volatile compounds of the obtained extracts were analyzed using chromatographic methods, including gas chromatography (GC)–mass spectrometry (MS) (GC–MS/MS), and high-performance liquid chromatography–MS. We analyzed physicochemical properties, fatty acid, and volatile compounds composition, sterol and tocochromanol content of blueberry, cranberry, raspberry, and cuckooflower seed oils obtained by sonication. This method is safe and effective, and allows for obtaining valuable oils from the seeds.

Słowa kluczowe

seed oils, fatty acids, tocopherols, tocotrienols, phytosterols