Physicochemical Characteristics of Plums (*Prunus domestica L.*) Oil and Its Possible Applications in Food Industry

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Abstract

The present study presents the physicochemical characterization of oil extracted from plum (*Prunus domestica L.*) kernels, aiming to evaluate its potential as a functional ingredient in food products. The oil was obtained through the development of a complex processing technology for plum seeds cultivated in the Republic of Bulgaria. Due to its high content of essential fatty acids, tocopherols, polyphenols, and flavonoids, the oil demonstrates potential for incorporation into healthy cereal bars, vegan desserts. In this study, the color parameters, spectral characteristics in the infrared (IR), ultraviolet (UV), and visible regions, as well as the content of β-carotene, chlorophyll, total tocopherols, sterols, and fatty acids were determined. The oil was found to be rich in monounsaturated fatty acids (69.4%) and β-carotene (25.43 ppm). Its oxidative stability, determined by the Rancimat method, was high—approximately 42 h. The utilization of plum kernels—a by-product of fruit processing—contributes to sustainable resource management and supports the principles of the circular economy through the valorization of agri-food waste with high added value.

Keywords

Plum oils, UV-Vis spectroscopy, FTIR analysis, stabilty.

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