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ULTRASOUND-ASSISTED EXTRACTION OF PHENOLIC COMPONENTS FROM TOBACCO WASTE

EKSTRAKCIJA FENOLNIH SPOJEVA IZ DUHANSKOG OTPADA POTPOMOGNUTA ULTRAZVUKOM

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Nowadays, a tendency for reducing industry waste is becoming more prominent due to a growing interest for utilization of industry by-products for various purposes. Tobacco waste is a by-products produced in large quantities during processing of tobacco and usually underutilized or considered as waste, in spite of the fact that contain different classes of useful bioactive components. The use of industry by-products has become extremely interesting due to ongoing concerns for human health and environment, as well as it represents cheap and nutritionally valuable raw materials in some other processes.

Tobacco waste (cigarette machine crumbs, dust and mid-rib) and leaves were obtained from "Fabrika Duhan Sarajevo" from Bosnia and Herzegovina.

Ultrasound-assisted extraction from different fractions of tobacco waste and leaves was performed. The influence of extraction temperatures (30, 50, 70 °C), time (15, 30, 45 min), solvent ethanol:water ratio (40 %, 60 %, 80 % v/v) and solvent-solid ratio (10, 30 and 50 mL/g) on the phenolic content in obtained extracts was determined.

The content of phenolic components was determined using reversed-phase High Performance Liquid Chromatography (HPLC). Extracts of various types of tobacco waste were characterized by high levels of chlorogenic acid and rutin with low level of caffeic acid. Ultrasound extraction conditions had statistically significant influence on content of phenolic components.

Keywords: tobacco waste, by-product, ultrasound extraction, bioactive components

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