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EXTRACTION OF BIOACTIVE COMPONENTS FROM TOBACCO INDUSTRY WASTE

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poster presentation

Tobacco industry produce a huge amount of waste, which is categorized as agro-industrial waste. The aim of this work was to investigate the influence of different ultrasound extraction conditions on the content of phenolic components and solanesol in tobacco waste extracts.

Tobacco wastes: fraction 1 (leaf waste and mid-rib) and fraction 2 (dust) were obtained from tobacco factory Hrvatski duhani, Virovitica.

The ultrasound-assisted extraction from tobacco wastes 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 of the obtained extracts was investigated. Extraction of solanesol was improved by the addition of NaOH into the extraction solvent in concentration of 0.05 M, under conditions of temperatures (33.78, 40, 55, 70, 76.2 °C) and time (8.78, 15, 30, 45, 51.21 min). The content of bioactive components was detected using High Performance Liquid Chromatography (HPLC). The applied ultrasound extraction conditions had statistically significant influence on the content of bioactive components. The extracts of tobacco waste obtained from fraction 1 were characterized by the presence of high levels of chlorogenic acid and rutin with low levels of caffeic acid and solanesol, while in extracts obtained from fraction 2 low levels of chlorogenic acid, rutin and solanesol were determined.

Keywords: tobacco waste, by-product, ultrasound extraction, phenolic components, solanesol

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