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of the South-East European Countries

BOOK OF ABSTRACTS

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Adsorption of green tea polyphenols onto spent coffee grounds

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Some waste materials demonstrated considerable adsorption affinity for phenolic compounds. This property serves two purposes: the recovery and purification of bioactive compounds or fractions from plants, as well as treatment of wastewaters that are laden by phenolics. This work presented the processing of solutions containing polyphenols by adsorption-desorption studies using spent coffee grounds. As a model system, green tea aqueous extract was prepared. The experiments were performed by batch sorption on a rotary shaker and dynamic column studies. 2 g of spent coffee sample was contacted with 100 ml of green tea extract solution for a predetermined period of time. The results were expressed as the residual total polyphenol concentration of tea extract, measured by the Folin - Ciocalteu method. Batch sorption studies showed a faster removal affinity, compared to column performance. After just 30 min of contact time, the removal percent of tea polyphenols by coffee residues amounted 40%. The desorption studies were also performed, and the results lead to effective purifying and concentrating of tea polyphenols for its further use.

As this study investigated the adsorbent capacity of no-cost waste material, such as spent coffee, for phenolic compounds binding, the obtained results were noticeable and offered numerous opportunities for a further experiments in this field.

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