



Laboratory elimination of ibuprofen from water by selected adsorbents

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Received 24 May 2019; Accepted 10 March 2020

ABSTRACT

The laboratory elimination of Ibuprofen from water by means of adsorption on selected adsorbents was part of specific academic research at the Department of Municipal Water Management, Faculty of Civil Engineering, Brno University of Technology. The purpose of the laboratory trial was to compare three selected sorbents, namely Filtrasorb F100, Bayoxide E33, and GEH, with regard to their effectiveness of Ibuprofen elimination from water. Filtrasorb F100 charcoal is generally used in practice for the elimination of medicinal product residues and other micropollutants. The sorbents Bayoxide E33 and GEH are used for the elimination of metal residues from water. The trial water was prepared in the laboratory by mixing the medicinal product with drinking water. An analysis of the samples taken after filtration from the individual columns in different time intervals proved that Bayoxide E33 and Filtrasorb F100 managed to successfully eliminate Ibuprofen from the water. The sorption material GEH became oversaturated in the course of filtration and did not continue to adsorb, with desorption instead appearing after some time.

Keywords: Water treatment; Adsorption; Ibuprofen; Filtrasorb F100; Bayoxide E33; GEH; Chromatography; Mass spectrometry; Effectiveness of sorption materials; Remove pharmaceutical

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