

Witek-Krowiak, A., Szafran, R., Modelski, S., Kowalska, I. Chromium(III) Ion Removal from Aqueous Solutions by a Submerged Hollow-Fiber Adsorber. *Ochrona Srodowiska* 2010, Vol. 32, No. 3, pp. 49–52.

Abstract: The aim of this work was to determine the efficiency of the hybrid membrane-sorption system for the removal of heavy metal ions (Cr^{3+} being the case in point) from model aqueous solutions. It has been demonstrated that this type of reactor enables the adsorption process to be combined with a separation process involving capillary membranes submerged in the solution being treated. When operated under conditions below the critical flux of the permeate, the submerged membrane system provides high removal efficiency at low energy demand. The experiments were aimed at evaluating the influence of aeration rate, trans-membrane pressure and sorbent concentration on the efficiency of Cr(III) ion removal from aqueous solutions. The use of peanut shells, a low-cost waste biosorbent, was proposed as an alternative to conventional carbon adsorbents. Owing to the very low operating costs involved, the treatment mode described above may become competitive with the classical methods of water and wastewater treatment.

Keywords: Adsorption, microfiltration, chromium, hybrid membrane-sorption system.