Treatment of spent filter backwash water from drinking water treatment with immersed ultrafiltration membranes

Josip Ćurko\textsuperscript{a}, Ivan Mijatović\textsuperscript{a,*}, Dean Rumora\textsuperscript{b}, Vlado Crnek\textsuperscript{a}, Marin Matošić\textsuperscript{a}, Mladen Nežić\textsuperscript{c}

\textsuperscript{a}Faculty of Food Technology and Biotechnology, University of Zagreb, Pierottijeva 6, Zagreb 10000, Croatia
Tel. +385 1 4605131; Fax: +385 1 4605072; email: imijat@pbf.hr
\textsuperscript{b}Engineering Department, Almes Eko Ltd, Pomerio 9, Rijeka 51000, Croatia
\textsuperscript{c}Research Department, Istarski vodovod Ltd., Sv. Ivan dol 8, Buzet 52420, Croatia

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\textbf{ABSTRACT}

The purpose of this study was to investigate characteristics of treatment of spent filter backwash water (SFBW) from two full-scale drinking water treatment plants (WTPs) with immersed ultrafiltration membranes in order to achieve reuse of permeate. During this study, 10\% of daily generated SFBW from the treatment plants in Croatia were treated on two pilot-scale UF plants. Three different types of immersed membranes were employed and operated with fluxes, which ranged from 10 to 54 L/m\textsuperscript{2} h in two continuous experiments, which lasted 75 and 96 days. During both experiments, transmembrane pressure, flux, and turbidity of filtrate were constantly measured. Rate of membrane fouling was very slow, and no chemical cleaning was needed but the membranes were regularly relaxed. Turbidity of permeate was always below 0.5 NTU. Results confirmed that permeate could be reused either for backwashing of sand filters, or as a source of raw water for drinking water treatment process.

\textit{Keywords:} Ultrafiltration; Water reuse; Spent filter backwash water; Drinking water