

عنوان مقاله:

Characterization of Hemodialysis Reverse Osmosis Wastewater From Yazd Educational Hospitals

محل انتشار:

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خلاصه مقاله:

This paper evaluates the technical feasibility of reusing hemodialysis reverse osmosis wastewater from educational hospitals in Yazd, Iran, as an alternative water source. For this study, from October to December ۲۰۱۳, hemodialysis reverse osmosis wastewater samples were obtained from two dialysis facilities and analyzed for biochemical oxygen demand (BOD), chemical oxygen demand (COD), pH, and electrical conductivity (EC) using standard methods. Furthermore, concentrations of heavy metals such as Ag, Ba, Cd, Cu, Pb, Se, and Zn were calculated. Results were analyzed using the one sample t-test and independent t-test in SPSS ۱۶ software. Mean concentrations of Ag, Ba, Cd, Cu, Fe, Pb, Se, and Zn in the hemodialysis reverse osmosis wastewater were ۰.۰۹۶۰, ۰.۰۶۱۱, ۰.۰۱۸۶, ۰.۳۳۸۱, ۰.۲۱۵۳, ۰.۲۲۱۲, ۰.۴۱۹۶, and ۰.۰۶۶۷ mg/L at S. Dr. Rahnamoon hospital, and ۰.۰۹۶۳, ۰.۰۸۴۹, ۰.۰۱۷۷, ۰.۲۹۴۲, ۰.۲۱۶۰, ۰.۱۸۲۷, ۰.۳۴۲۰, and ۰.۰۸۶۷ mg/L at S. Sadoughi hospital, respectively. The results also showed that the important challenges for reusing hemodialysis wastewater were its high EC and the presence of some elements, such as Se and Pb. Unlike Se and Pb, the concentrations of the other parameters were below discharge emission standards. Because of the large volumes of water used in hemodialysis, it is important to study the potential for reusing or recycling it. Through evaluation of the technical feasibility of hemodialysis wastewater reuse, this study draws attention to this neglected issue, especially in hemodialysis therapy.

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