

عنوان مقاله:

(Treatment of Hospital Wastewater by Novel Nano-Filtration Membrane Bioreactor (NF-MBR

محل انتشار:

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خلاصه مقاله:

In this paper a pilot-scale membrane bioreactor (MBR) equipped with nano-membranes treating the hospital wastewaters has been studied in order to evaluate the removal of nutrients. The main goal was to examine the feasibility of the NF-MBR used to treat hospital wastewater. Process efficiency was evaluated in terms of COD, NH₃ N, NO₃-N, NO₃-N and PO₄-P removal. The pilot plant located at the Babol Clinic Hospital, Babol, Mazandaran, Iran. The performance of NF-MBR pilot for biological nutrient removal was evaluated during 62 days of operation. The NF-MBR resulting in respective HRT of 2.9 h. The influent COD, NH₃-N and PO₄-P averaged at 688, 11.8 and 3 mg/l respectively. The final treated effluent COD, NH₃-N and PO₄-P for the same period averaged 35, 1.69 and 0.89 mg/l respectively. The operating results of the pilot plant demonstrate that the NFMBR process is both effective and efficient in meeting the water discharge and reuse quality requirements at the hospital. The NF-MBR showed a high COD removal, stable and complete nitrification. The biological nutrient removal efficiencies were high from the start of operation with COD and NH₃ N removal efficiencies of $92 \pm 4\%$ and $88 \pm 2\%$, respectively. During the course of the experiment PO₄-P removal efficiencies increased and finally PO₄-P removal efficiency of 68% was achieved. Indicating that the NF-MBR effluent can be directly discharged into natural waters and it's suitable for reuse

کلمات کلیدی:

Nano-Filtration Membrane bioreactor (NF-MBR)/ Hospital wastewater /Nutrients /Flux /Nitrogen/ Phosphorous

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