

## عنوان مقاله:

(Effect of Hydraulic Retention Time on Membrane Fouling and Biomass Growth in Membrane Bioreactor (MBR

## محل انتشار:

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## خلاصه مقاله:

Treatment processes for wastewater renovation can be classified in a number of ways. Membrane bioreactor is a new method. Submerged membrane bioreactors (SMBRs) having many advantages in wastewater treatment. Application of membrane bioreactors (MBRs) for treatment of organic wastewaters is rapidly increasing. The effect of hydraulic retention time (HRT) was investigated in this research. A 5-liter glass vessel equipped with an immersed PVDF hollow fiber membrane module was used as MBR unit. Phenol was selected due to the toxicity of phenolic compounds present in wastewater of many industries. Acclimatized activated sludge with phenol during a period of 2 months was used as microbial source. Phenol and COD concentrations in the influent were set at 1000 mg/L and 2380 mg/L, respectively. The effect of HRT on system performance was investigated. Results showed that more than 99% phenol could be achieved at all HRTs confirming the high ability of this system in removing organic pollutants. Then effect of HRT on membrane fouling was investigated. Results showed that membrane fouling is most significant at the lowest HRT. Finally, effects of, mixed liquor suspended solid (MLSS) and mixed liquor volatile suspended solid (MLVSS) were determined as the biological system growth. The results showed that HRT does not affect MLSS while it increases continuously with time. But in low HRT increase with high incline. MLVSS depends on HRT and it show increases at first and then remains constant. Overall, the most appropriate operating condition for phenolic wastewater treatment using MBR was found to be HRT = 8 h, due to highest influent flow rates

## کلمات کلیدی:

Submerged membrane bioreactor (SMBR), hollow fiber membrane, membrane fouling, Hydraulic retention time

## لینک ثابت مقاله در پایگاه سیویلیکا:

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