



Investigation Of Textile Wastewater Treatment, Using A System Of Sub Surfaceconstructed Wetland

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ABSTRACT

Apart from scarcity of water which is considered a global problem, in some developing countries like Iran, the quality of available water is also deteriorating due to pollution of water bodies, hence intensifying the shortage. Following lack of investment in Textile wastewater treatment and high investment and maintenance costs, conventional treatment systems have not been widely used. Therefore a cost effective and easily maintained and operated method like using a system of constructed wetlands seems to be of interest for treatment of textile wastewater. In order to investigate the effect of hydraulic residence time (HRT) and plant density on the performance of horizontal subsurface flow (HSSF) constructed wetlands, treating industrial wastewaters, three pilot-scale units of dimensions 1.5 m in length, 0.5 m in depth and 0.5 m in width were operated continuously in parallel experiments. The three units with fine gravel were planted, first one with 80 percent and second one with 25 percent plant density covered by *Cortaderia selloana*, the third was kept unplanted. Synthetic wastewater which was specifically produced and modified to imitate textile wastewater was introduced in the units during the operation period. Four different HRTs (i.e., 1, 2, 3 and 5 days) were used. The removal performance of the constructed wetland units was very good since it reached an average of 88, 74 and 76 for COD, Turbidity and color respectively. All pollutant removal efficiencies showed dependence on plant density and the results show 3 days HRT was adequate for acceptable pollutant removal.

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