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Dynamics of microbial communities from constructed wetlands treating tannery wastewater planted with *Typha latifolia* in different substrates

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The tannery industry is an important sector in the European Union market. An efficient wastewater management is crucial to the optimization of resources and sustainability of the process. Constructed wetlands (CWs) can be potentially used to complement the biological performance of the systems or can be an alternative to the conventional biological treatment. CWs are engineered systems that mimic natural wetland treatment processes in a controlled environment. They are an effective method for treatment of urban or industrial wastewaters. The main role in the transformation and mineralization of nutrients and organic pollutants is played by microorganisms (2). CWs have been used for the treatment of tannery wastewater (1). The aim of this study was to analyze the bacterial diversity of horizontal subsurface flow CWs planted with *Typha latifolia*. Three different types of substrates were used for treatment of tannery wastewater under long-term operation. A time series of 16S PCR-DGGE band profiles was obtained for the three substrates as well as for an unvegetated control. MDS analysis of DGGE profiles showed that the bacterial community composition is mainly influenced by the type of substrate. The DGGE profiles of unvegetated control cluster together, indicating the establishment of a particular bacterial community. These results are an important contribute for understanding how microbiota modulates the efficiency of CWs.

References:

(1) Calheiros C.S.C. et al. (2007) WATER RESEARCH 41:1790-1798.

(2) Stottmeister A. et al. (2003) BIOTECHNOLOGY ADVANCES 22:93-117.