The Role of Macrophytes in the Removal of Organic Micropollutants by Constructed Wetlands

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ABSTRACT

The contamination of aquatic environments with organic micropollutants (OMPs) resulting from human activities is becoming a widespread, serious environmental issue. The problem is mainly rooted in a general inefficiency of conventional wastewater treatment plants to deal with this type of pollutants, which causes treated wastewaters to still contain significant amounts of OMPs as they are discharged into the receiving water bodies. Among various technologies that have been developed and evaluated for removal of OMPs from wastewaters, constructed wetland systems (CWS) are generally seen as a cost-effective option. Aquatic macrophytes are a fundamental component of CWS, possessing a vast potential for removal, transformation/degradation of a variety of OMPs. This chapter presents a review focusing on the role of macrophytes in CWS targeted for OMPs removal, detailing the several types of physical, chemical and biological processes that may be responsible for their role in removing these pollutants from wastewater, how these processes are affected by several conditions and characterizing the situations where each type of process may be more relevant. Furthermore, the

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types of interactions that potentially occur between plants and the other components of CWS,

and how important these interactions may be for the system's performance are briefly presented.