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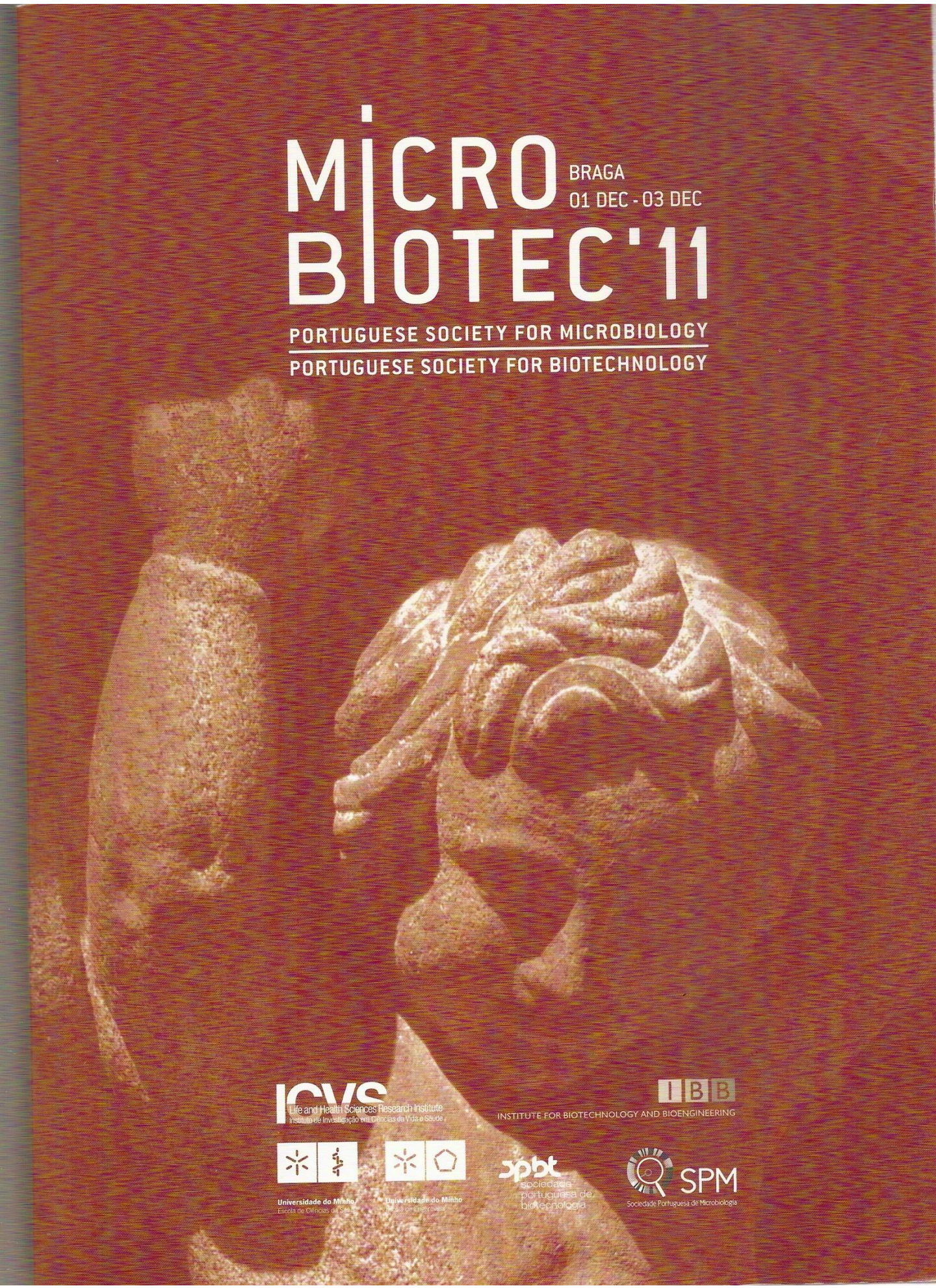

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Microbial communities inhabiting a constructed wetland applied to tourism wastewater treatment

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Constructed wetlands (CWs) are man-made wastewater treatment systems that intent to mimic the conditions, mainly in terms of physicochemical and biological processes, of natural wetlands. They represent a low-technology treatment, enabling many times wastewater recycling and reuse. CWs structural components include, in general, a support media, macrophytes, water, microbes and fauna population. Two important groups of these microbial organisms are bacteria and fungi, including mycorrhiza; primarily because of their role in the assimilation, transformation, and recycling of chemical constituents present in various wastewaters. The aim of this study was to assess microbial community shifts over a full year operation on a CW treating wastewater coming from a Portuguese rural tourism unit (Paço de Calheiros, Ponte de Lima). This CW is vegetated by *Canna flaccida, Canna indica, Zantedeschia aethiopica, Watsonia borbonica* and *Agapanthus africanus* in an expanded clay substrate (Leca®M). Plant

roots were sampled from the inlet and outlet of the CW and microbial community profiles determined using PCR-DGGE. Species diversity were analysed and used to estimate microbial diversity and composition variation over a period of time. Tourism facilities are often characterized by great variations in wastewater quantity and quality over the year, affecting negatively the performance of conventional treatment systems. The use of CWs under this scenario still needs research and knowledge on microbial dynamics can be of great importance to the understanding of such systems.

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