

Environmental Microbiology and Biotechnology

P-087 - FAECAL INDICATOR BACTERIA AND LISTERIA MONOCYTOGENES IN PONDS, NATURAL AND CONSTRUCTED WETLANDS: EVALUATING WATER QUALITY

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Background

Water contaminated with microbiological and chemical constituents can cause a variety of diseases. Wetlands may become contaminated by wild and domestic animal's faeces, agricultural runoff, or sewage, and are often overlooked as a reservoir and source of human infection by pathogenic microorganisms. The objective of this study was to examine natural (NW) and constructed (CW) wetlands and artificial ponds (AP), located in urban and rural areas of the north of Portugal, for the occurrence of faecal pathogens, indicator bacteria and *Listeria monocytogenes*.

Method

Water samples were collected from six sites at two sampling dates. In an urban area three AP (1- city garden; 2- city park; 3- 7th floor roof terrace at the city centre) were considered and in a rural area one AP (4- ecological pool), one CW (5- tourism house/Paço de Calheiros) and one NW (6- Bertiandos and S. Pedro of Arcos Lagoons; considered protected landscape) were considered. Microbial analysis were performed using the membrane filtration technique for the enumeration of total coliforms, *Escherichia coli* and *Enterococcus* spp., and detection of *L. monocytogenes* and *Salmonella* spp.

Results & Conclusions

Total coliform counts ranged between 100 to 1500 CFU/100 ml, *E. coli* between <1 to 570 CFU/100 ml, and *Enterococcus* between 9 to 610 CFU/100 ml. The city park AP was positive for *Salmonella* spp. in both sampling visits, while the NW (Bertiandos, rural area) was positive in one sampling visit. *Listeria monocytogenes* was present in samples collected from the urban AP of the city garden (once), the CW in the tourism house (both sampling visits), and the NW (once). These data show that natural and artificial wetlands and artificial ponds are a reservoir of faecal indicator bacteria, and enteric and foodborne pathogens.

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