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049 : Biofilms in Ornamental Waters: A Risk Assessment Study

Session C

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Ornamental waters of easy access and populated with animals are quite attractive and can hide threats to human health. Here we evaluated, during one year, the microbiota of ornamental waters in a Lisbon park in order to assess the risk for human health. A total of 26 different bacterial species were identified during the study. Among these are potential human pathogens such as *Aeromonas*, *E. coli*, *K. pneumoniae*, *Pseudomonas* and *Raoutella*. *Aeromonas sobria* is a resident bacteria whereas other species such as *A. hydrophila* and *A. veronii* were aporadically identified. A possible explanation for this result is the presence of a fish population. The presence of *E. coli* indicates water contamination with fecal materials. We first isolate this bacterium in June when the water temperature increased and thenafter it was a resident despite the natural temperature drop in the Fall. This might be explained by the replace of the fish population by ducks in October which lead to an increase in water tubirdity and total carbon content. *Pseudomonas fluorescens*, *P. putida* and *P. oryzihabitans* have been considered low-virulence bacteria but recently have been identified as ethiological agents of healthcare assotiated infections (HAI) mostly in immunosupressed individuals. Another recognized HAI agent present is *K. pneumoniae*. The same bacteria species were isolated from biofilm and water suggesting the exhistence of an equilibrium between planktonic and biofilm organized bacteria. The role played by biofilm assembly on the emergence of antibiotic resistance is still ongoing for the isolated bacteria, as well as the possible interaction between water chemical composition and bacteria isolates. Potential pathogens (biofilm or planktonic) represent a significant cause of acute bacterial infections mainly in spcefic populations (pediatric and geriatric). These results support a periodic control of ornamental water microbiota as simple preventive measure to avoid potential health issues.