MICRO BIOTEC 19

CONGRESS OF **MICROBIOLOGY** AND **BIOTECHNOLOGY 2019**

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BOOK OF ABSTRACTS

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I1. Environmental Microbiology and Biotechnology

P90. Water quality of the Fervença river hydrographic basin: microbiological impact of anthropogenic activities

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Microbiological monitoring of natural waters is of utmost importance for their evaluation in terms of public health.
In this study, the microbiological water quality of the Fervença river hydrographic basin, Bragança, Portugal, was evaluated. This river results from the confluence of streams and water lines of natural runoff on the north side of the Serra da Nogueira (rural environment), crosses the city of Bragança (urban environment with a downstream wastewater treatment plant, WWTP) and flows into the river Sabor (rural environment).
Sampling included 4 samples upstream of the city of Bragança, 4 samples in the city, one immediately after the WWTP, and 2 samples downstream of Bragança, being the last one at 10 km of the urban center. The samples were collected in the same day, transported in thermal suitcases, refrigerated and analyzed in the microbiology laboratory of the IPB, in the parameters: *Escherichia coli* and Intestinal *Enterococci*.
These parameters were evaluated considering the Portuguese Republic Decree-Laws on the quality of bathing water, nº 236/98 of 1 August and nº 113/2012 of 23 May, which are based on the microbiological analysis of *Escherichia coli* (recommended maximum limit of 1000 CFU/100 mL) and faecal *Streptococci* contents (recommended maximum limit of 400 CFU/100 mL).
Results showed that the levels of *Escherichia coli* in the urban environment waters exceed 4.0×10^3 CFU/100 mL, worsening after the WWTP, where the value of 1.3×10^6 CFU/100 mL was reached. In the case of fecal *Streptococci*, levels above 1.3×10^5 CFU/100 mL were obtained in all samples, except in sample of the Castanheira water reservoir.
The high microbiological load present in the waters sampled in the Fervença river hydrographic basin questions its use for bathing or for irrigation purposes, suggesting that the quality of the water is "Bad" which may constitute a risk to Public Health.