AMSTERDAM INTERNATIONAL WATER WEEK

Abstract Title	title CONTROL OF MICROBIOLOGICAL SANITARY RISK IN POTABILIZATION BY MEANS OF REAL-TIME ANALYZERS
Topic	**X Improving water quality** O Resilient water systems O Circular solutions: Reuse, Recover and Recycle O Transitions in water, agro/food and energy
Challenges and Solutions	Challenges: Provide validated tools for the real time control of microbiological risks during drinking water treatment process to provide a preventive control. Solutions. Evaluation of the operational robustness of two commercial real-time measurement techniques for microbiological control.
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Abstract	The control of the different health risks, both physical and chemical or microbiological, that may appear during the drinking water treatment process is crucial to move towards preventive control within the framework of the Water Safety Plans. To measure the microbial quality of water and control associated health risks, the heterotrophic plate count is used as a generic measurement parameter, as indicated in the Drinking Water Directive ((UE) 2020/2184). But, as is known, the percentage of detectable microbial cells in culture media is very low, so this indicator can sometimes provide limited information. In the last decade, the first commercial solutions have appeared for the monitoring of microbiological

	parameters in real time in the integral water cycle. These tools can become a fundamental help in detecting hazards. However, certain barriers persist that make it difficult to acquire these commercialized technologies for process water monitoring, such as the lack of previous experiences that can demonstrate their robustness or the complexity of interpreting the indicators that these equipments measure. In this study, the operational robustness of two real-time measurement techniques for microbiological parameters has been assessed. Likewise, its application in the drinking water process of Sant Joan Despí (Barcelona, Spain) has been studied for the early detection of microbiological events that allow minimizing health risks in drinking water. In conclusion, the potential of real-time analyzers for early event detection has been demonstrated. In the first place, they allow obtaining much more information compared to point sampling. Secondly, it is necessary to highlight the speed of results' obtention from the analyzers in real time, which shortens the time for decision-making of actions against events. Both instruments have shown to be robust and autonomous in operation under real conditions and to provide interesting information on the microbiological dynamics of the Drinking Water Treatment Plant. Understanding these dynamics can help decision-making and the optimization of the operation.
Figures/diagrams/illustrations	

	 Sensors assessed