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**BOOK OF ABSTRACTS**



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**Biodegradation of Bisphenol A and Bisphenol S by *Labrys portucalensis* strain F11** **PC 12**

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### Abstract

Growing concern about the possible human health effects of Bisphenol A (BPA), particularly as an endocrine disruptor, has led to recent attempts to remove it from some consumer products, often labelled as "BPA-free". However, some of the common replacers are also bisphenols (BPs), such as Bisphenol S (BPS) which may have similar physiological effects in organisms [1]. Industrial and municipal wastewaters are ecosystems particularly exposed to BPs pollution and are common sources of BPs contamination. From the different techniques to remove BPs, biodegradation seems to be the more effective [2].

In this study, biodegradation of BPA and BPS was assessed using the bacterial strain *Labrys portucalensis* F11 in mineral medium (MM). Complete degradation of both compounds supplied at 2.0 mg L<sup>-1</sup> was reached in independent assays by this bacterium, via co-metabolism, over a 15 days period. BPA and BPS biodegradation by strain F11 was evaluated in a real matrix of municipal wastewater and preliminary results showed a complete degradation of the supplied amount of BPs (2.0 mg L<sup>-1</sup>) in 17 days. Toxicity assays are being carried out on whole samples of biodegradation experiments. Identification of degradation metabolites is ongoing to better understand the degradation pathway BPA and BPS by *L. portucalensis* F11.

To the best of our knowledge, this is the first report that points to complete degradation of BPS by a single bacterial strain isolated from the environment.

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### Bibliography

- [1] Rochester J.R., Bolden A.L. (2015). *Environ Health Perspect* 123, 643-650.  
[2] Noszczyńska M., Piotrowska-Seget Z. (2018). *Chemosphere* 201, 214-223.