

School of Engineering Seminar Series

Enhanced production and antimicrobial potential of a novel biosurfactant produced by a drilling waste-degrading *Pseudomonas citronellolis* strain

Wednesday, 21 July 2021, 10:00 – 11:00

For seminar attendance, click [here](#).

Meeting ID: 964 5334 1708, Passcode: 946056

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Abstract:

In the presented study, a *Pseudomonas citronellolis* strain was isolated from drilling waste (DW). This strain could utilize DW as the sole energy and carbon source to produce biosurfactants (BSs). This substantially reduces bioprocess cost of BSs production as an inexpensive substrate, such as DW, is used to produce an added-value compound. The BS produced was thermally stable, amorphous and includes a peptide structure. Different iron sources and Carbon/Nitrogen ratios was used to enhance BS production, determining an optimization strategy of BS production. The BS was also partially purified and used against gram-negative and positive multi-drug resistant bacteria. The minimum inhibitory concentration was defined. The antimicrobial properties of the BS established its effectiveness and down-stream processing cost reduction, as no additional purification steps were necessary. The study demonstrates a sustainable low-cost bioprocess towards a circular bioeconomy, while the BS holds great potential as a novel compound with antibiotic and disinfectant-like action.

Bio:

Dr Argyro Tsipa is a Lecturer in Environmental Biotechnology at the Department of Civil and Environmental Engineering at University of Cyprus since September 2019. She founded the Laboratory of Environmental Biotechnology in 2020 while she is member of the academic council of Nireas International Water Research Center at University of Cyprus. Before her current appointment, she was a research associate at the UK's National Centre for Synthetic Biology and the London Biofoundry at Imperial College London, UK. She holds a PhD in Bioprocess Systems Engineering and a MSc in Advanced Chemical Engineering from Imperial College London, UK. She obtained her diploma in Chemical Engineering from the National Technical University of Athens, Greece. Dr Tsipa research interest lies on combating environmental pollution through biological systems engineering.

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