

ELECTRON ACCEPTOR-LIMITATION CONTROLS WASTEWATER ELECTROGENIC BIODEGRADATION IN GEOBACTER SULFURREDUCTENS

Researchers at Bioelectrogenesis group from University of Alcalá have demonstrated that electron acceptor-limitation can control wastewater electrogenic response in *Geobacter sulfurreducens*. The preliminary results of this study were presented during poster sessions at the twentieth annual meeting of the Society of Environmental Toxicology and Chemistry (SETAC) that was held in Seville, Spain from 23 to 27 May 2010.

According to authors, previous studies have shown that the acetate/electron acceptor (TEA) ratio is key for the coupling among oxidation and exocellular electron transfer while outermost membrane cytochromes establish the electrical wiring from *G. sulfurreducens* to the conducting surface. For giving insights into this fact, researchers have analyzed acetate-limiting and acetate-excess chemostat cultures by combining Cyclic Voltammetry assays with outermost protein biochemical analysis. Furthermore, they have analyzed the metabolome of chemostat-growing cells in order to evaluate the fluxome pattern for the optimal conversion of waste into current production.

This study, which has been funded by 7th Framework Programme Project Bacwire, suggests a different electrogenic response regarding the substrate-limitation of *G. sulfurreducens*. Fluorescence emission profiles indicate that outermost membrane cytochromes may play a crucial role for current production when cells are cultured under electron acceptor-limiting conditions. Furthermore, the fluxome pattern of these cells supports the hypothesis of the optimal physiology for the conversion of waste into electricity.

The SETAC Europe Annual Meeting is Europe's biggest meeting on environmental toxicology and chemistry with more than 1500 presentations in parallel platform sessions and poster sessions, participants and scientific speakers from academia, business and government and a blend of scientists and practitioners, researchers and regulators all in attendance.

For further information:

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