

# **SUPPORTING INFORMATION**

## **Sulfide-driven Microbial Electrosynthesis**

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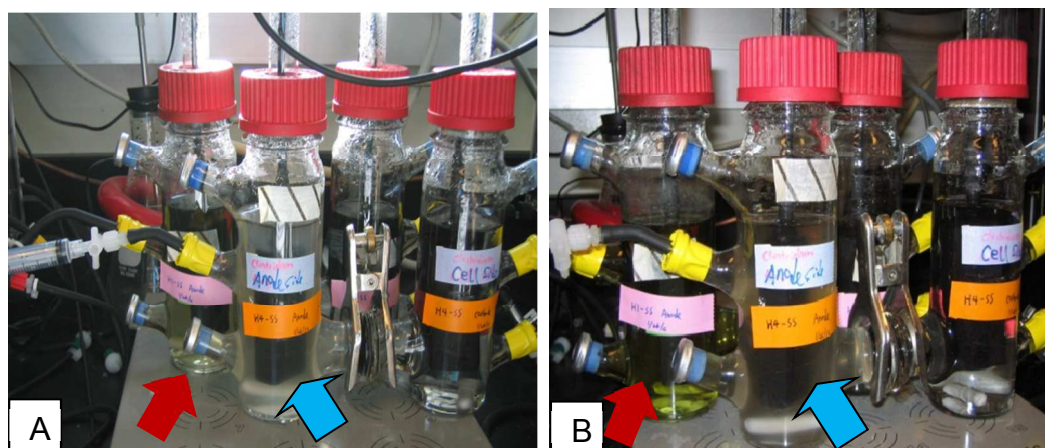
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**Figure S1:** page S2

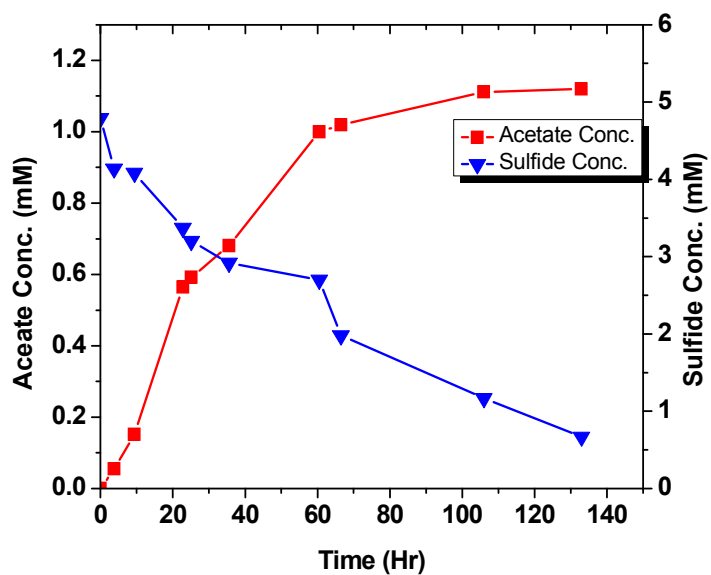
**Figure S2:** page S3

**Figure S3:** page S4

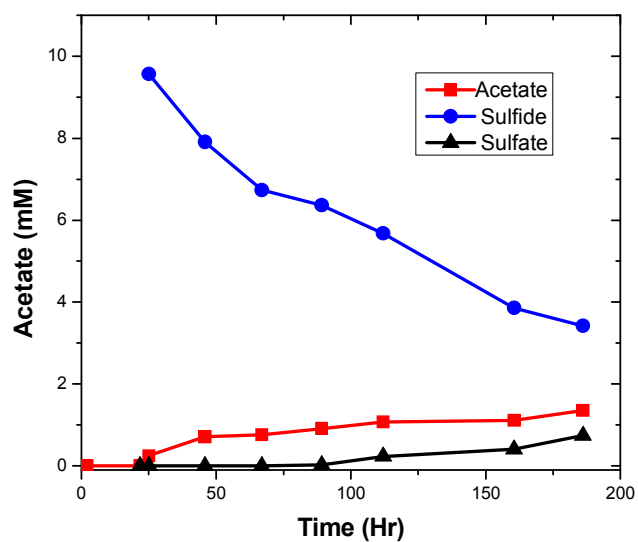
Total: 3 figures, 4 pages



**Figure S1:** Sulfide oxidation after (A) 3 days and (B) after 12 days from the start of an experiment. Red arrows highlight the anode chamber of a sterile (abiotic) reactor; blue arrows highlight the anode chamber of a biotic reactor containing *D. propionicus* cells. Abiotic production and accumulation of elemental sulfur from sulfide could be observed visually by color change of the electrolyte after addition of sulfide to the bioreactor. The electrolyte color in the anode chamber of the sterile system turned noticeably yellow due to elemental sulfur accumulation in the reactor, while the system with *D. propionicus* on the anode did not result in a noticeable color change.



**Figure S2:** An additional replicate was performed for abiotic sulfide oxidation coupled to acetate electrosynthesis. Over the course of 120 hours, sulfide is abiotically oxidized to sulfur on the anode while *S. ovata* at the cathode reduce dissolved carbon dioxide to acetate by electrosynthesis.



**Figure S3:** An additional replicate was performed for coupled biotic sulfur oxidation by *D. propionicus* and acetate electrosynthesis by *S. ovata*. After a lag time of approximately a day, acetate electrosynthesis began at the cathode. At the anode, however, a longer lag time of 89 hours was observed before the biotic oxidation of sulfur to sulfate began.