ChemSusChem

Supporting Information

From CO_2 to Bioplastic – Coupling the Electrochemical CO_2 Reduction with a Microbial Product Generation by Drop-in Electrolysis

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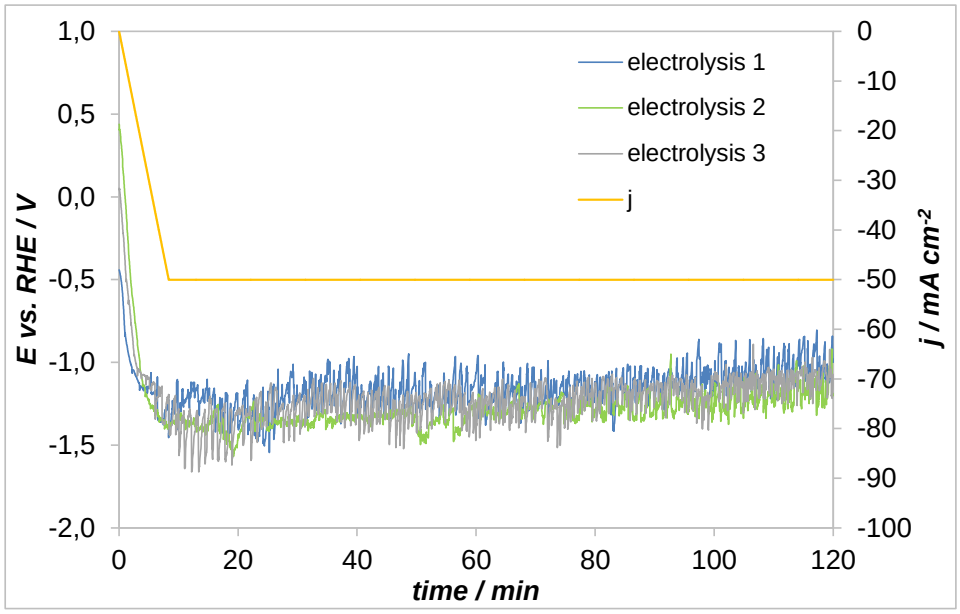
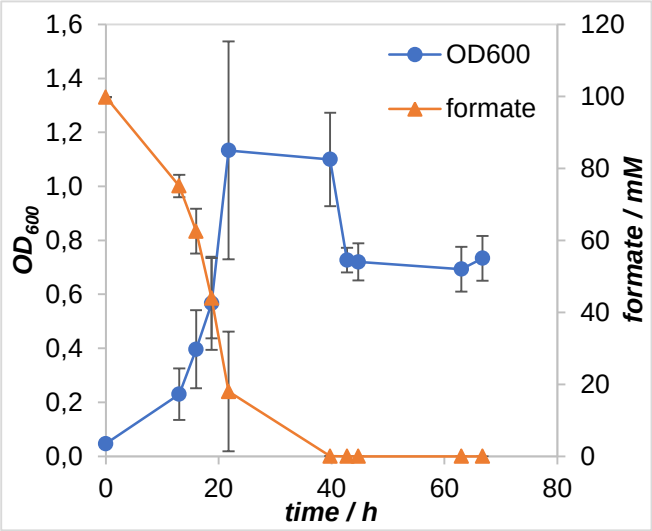
Results and discussion

CO_2 electrolysis to formate for bioconversion



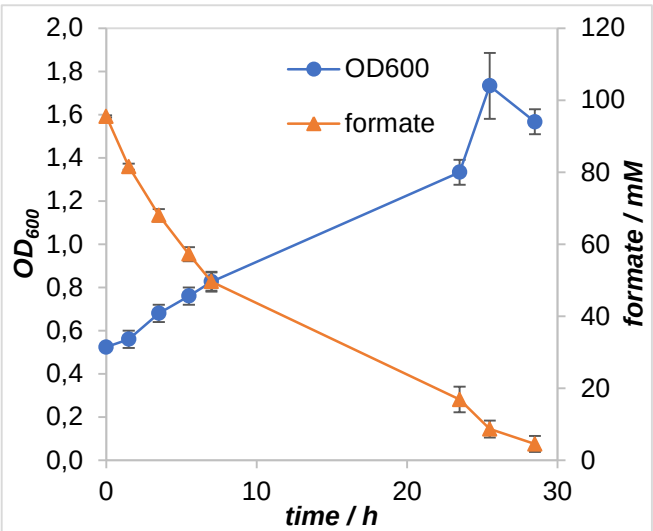
SI figure 1: Time course of electrode potential (*E* vs. RHE, no iR-drop correction) and current density (*j*) during CO_2 electrolysis at Sn-based GDE in a custom designed electrolysis reactor. Blue line: electrolysis 1, green line: electrolysis 2, grey line: electrolysis 3, yellow line: *j*.

Cultivation of *C. necator* on 100 mM formate medium



SI figure 2: Time course of optical density and formate concentration observed for the incubation of *C. necator* resting cells on 100 mM formate medium with manual pH control. Blue circles: OD_{600}, orange triangles: formate concentration. Mean ± SD, n = 3.

PHB production with *C. necator* from formate

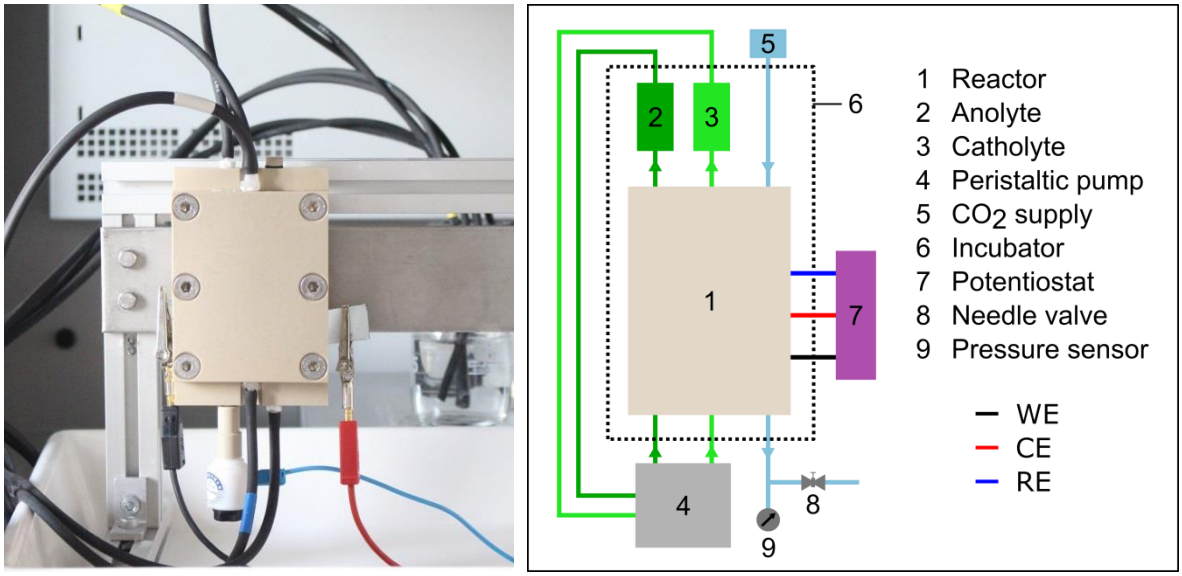


SI figure 3: Time course of optical density (OD_{600}) and formate concentration observed for the incubation of *C. necator* resting cells on 100 mM formate medium lacking $(NH_4)_2SO_4$ with manual pH control. Blue circles: OD_{600}, orange triangles: formate concentration. Mean ± SD, n = 3.

Experimental Section

Electrochemical formate synthesis from CO2

Reactor set-up



SI Figure 4: Photograph (right) and schematic illustration (left) of the reactor-set-up for CO_2 electrolysis.