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Review

Microbial Electrolysis Cells for Decentralised Wastewater Treatment: The Next Steps

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Table S1. Collation of data from previous studies of using microbical electrolysis cells to treat different organic influents.

Substrate / Feedstock (inoculum Source)	COD Input Range (mg/L)	Batch / Flow	Architecture type	Scale (L)	Anode (Specific Anode Surface Area (m^2/m^3))	Cathode (Specific Cathode Surface Area (m^2/m^3))	HRT hrs	Duration (days)	Startup (days)	Voltage Appllied (V)	Temp (C)	Volumetric gas Production (m3 gas/m3 reactor volume/day)	Gas Composition H2 %	CH4 %	CO2 %	Energy Production (MJ/d)	Cathodic Coulombic Efficiency (%)	COD Removal (%)	COD Output	Cost	Author
Urban WW		Continuous	Dual Chamber	Estimated-8	Carbon Fibres & Titanium plate +	SS Wool	8		18	1		0.0198				46.8		24.55			[61]
Urban WW		Continuous	Dual Chamber	Estimated-8	Carbon Fibres & Titanium plate +	SS Wool	8			1		0.0000				0.00		24.63			[61]
Urban WW		Continuous	Dual Chamber	Estimated-8	Carbon Fibres & Titanium plate +	SS Wool	8		13	1		0.0668				157.58		27.40			[61]
Urban WW		Continuous	Dual Chamber	Estimated-8	Graphite Felt	SS Wool	8		42	1		0.0037				8.61		13.05			[61]
Pig Slurry (Urban WW Digestate)	2610	Batch	Dual Chamber	16	Graphite Felt (0.18)	SS Mesh (0.18)	48–124	103	25	1	19.2	0.2	98	0	0	462.56	78–84				[39]
Urban WW			Dual Chamber	16	Graphite Felt (2.226)	SS + Ni Gas Diffusion (2.226)										0.00					
Urban WW		Batch	Dual Chamber	30			30			0	25		78			0.00					[53]

Urban WW			Dual Chamber	30			30			0	25		67			0.00					
Urban WW (Urban WW)	260 ± 85	Continous	Dual Chamber	30	Graphite Felt (32)	SS Wool (13)	5	217		0.9	9–16	0.041						62.5	102 ± 38		[63]
Urban WW		Batch	Dual Chamber	30			30			0.2	25					0.00	27	78			[11]
Urban WW			Dual Chamber	30			30			0.2	25					0.00	11	67			[11]
Urban WW		Flow	Single Chamber	100			24			0.6–1.1	13.5–21	0.015				0.00	55	33.7			[11]
Urban WW		Flow	Dual Chamber	100			24			0.6–1.1	1–22	0.007				0.00	41	65.6			[11]
Urban WW (Urban WW + Acetate)	147–1976	Continuous	Dual Chamber	120	Carbon Felt (16.4)	SS (3.4)	24	365	64	1.1	1–22	0.007	98.5	0		0.16	41	44			[29]
Urban WW (Urban WW + Acetate)	140	Continuous	Dual Chamber	120	Carbon Felt (16.4)	SS Wool (3.4)	24	149	64	1.1	13.5–21	0.015	100	0	0	0.35	55	34		2344 /m^3	[89]
Urban WW		Continuous	Dual Chamber	120	Carbon Felt (16.4)	SS Wool (3.4)	24			1.1	1–22	0	98	0.8		0.17	41.2	44			[29]
Urban WW	450		Dual Chamber	120	Carbon felt (16.4)	SS (2.8)	24			1.1	1–22	0.015	80	1.8	18.2	0.30	55	34			[11]
Glycerole (AD Sludge+)	400	Continuous	Dual Chamber	130	Graphite Fibre Plate + (1.63)	SS Wool + (2.72)	48	210	50	1.5	18–22	0.013	78.3	0		0.24	30	26.3			[53]

Synthetic WW + (AD Sludge+)	400	Continuous	Dual Chamber	130	Graphite Fibre Plate + (1.63)	SS Wool + (2.72)	48	210	50	1.5	18–22	0.028	76.3	0	0.51	23	36.8		[53]
Urban WW (AD Sludge+)	500	Continuous	Dual Chamber	130	Graphite Fibre Plate + (1.63)	SS Wool + (2.72)	48	210	50	1.5	18–22	0.031	94.1	0	0.68	28	25		[53]
Urban WW (Urban WW)	261 ± 85	Continuous	Dual Chamber	175	Graphite Felt (34)	SS Wool (13)	5	217	90	0.9	9–16	0.005	95	0	0.10	<10	63.5	124.7	1308 [63]
Synthetic WW + (AD Sludge+)	1000-1500 mg L^{-1}	Continuous	Dual Chamber H-Type	580	Graphite blocks with titanium wire core	Graphite blocks with titanium wire core (180 cm2)									0.00	96			
Winery WW				1000	Graphite fibre brush	SS Mesh	24					0.2			0.00		62		[11]
Winery WW (Raw WW + Sludge)	700–2000	Continuous	Single Chamber	1000	Graphite Fibre Brush +	SS Mesh (18.1)	24	100	60	0.9	31	0.190	0	86	11.31		62		[30]