

Supplementary Information for:

Fermentation-Based Oxalic Acid Production for Sustainable Gallium Recovery from Electronic Waste

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S1. Supplementary Material

Instrument: Capel 105M S/N 1506

Capillary cassette and capillary

Number : 1166.3

Purpose : Organic acid

Internal diameter, μm : 50

Total length, cm: 50

Effective length, cm: 40

Coating : no

Temperature: 20.0 °C

Wave length: 254

Sample: Fed-Batch_384h_1000_#n

Dilution: 100.0

Buffer: Buffer for Analysis

Calc. method: Absolute calibration.

Program:

1. Rinse. From 3 to 1, $t = 63$ sec, $U = 0$ kV, $P = 1000$ mbar.

2. Injection. From 10 to 2, $t = 5$ sec, $U = 0$ kV, $P = 30$ mbar.

3. Analysis. From 4 to 2.

3.1. $t = 419$ sec, $U = -25$ kV, $P = 0$ mbar, $W = 254$ nm.

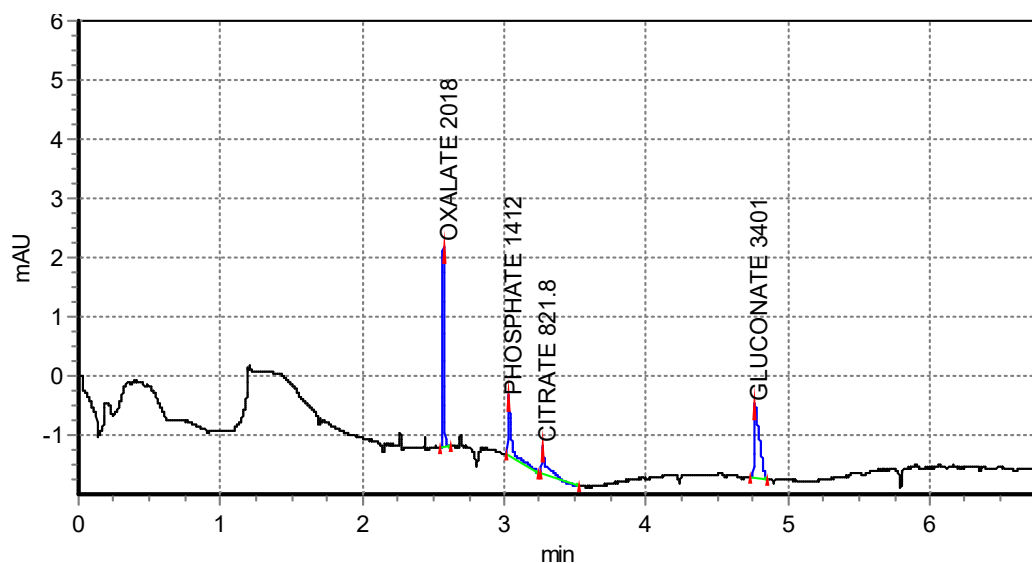


Figure S1. Electropherogram indicating the detected organic acids and anionic peaks in the supernatant of 384-h Fed-Batch fermentation (1:500 Dilution) by capillary electrophoresis. Capillary, 60 cm, capillary diameter 0.075 mm; temperature at 25°C, 5s of sample injection (30 mbar), -25 kV voltage, negative polarity, indirect detection at 254 nm using a buffer solution consisting of chromium (VI) oxide (10 mM), diethanolamine solution (30 mM), and Hexadecyltrimethylammonium hydroxide (CTA-OH) (3 mM)

N	Time	Component	Height	Begin	End	Area
1	2.572	OXALATE	3.395	2.550	2.625	21.82
2	3.028	PHOSPHATE	1.018	3.012	3.237	19.15
3	3.270	CITRATE	0.479	3.250	3.522	11.30
4	4.767	GLUCONATE	1.270	4.742	4.860	32.36