Supplementary Information for "Oxygen-tolerant Coenzyme A-acylating aldehyde dehydrogenase facilitates efficient photosynthetic n-butanol biosynthesis in cyanobacteria"

Data used for Figure 6A

The following table shows calculation for converting productivity reported in the literature into molar productivity

Units	Titer mg/L	Time days	Productivity mg/L/d	Molar mass mmol/mg	Molar productivity µmol/L/d
n-butanol	402	12	33.5	74.12	452
fatty acid	197	2	98.5	172 - 284	411[a]
3-hydroxy-butyrate	533.4	21	25.4	104.1	244
acetone	36	4	9	58.08	155
fatty alcohol	0.20044	18	0.011	242 - 270	0.0422[b]

[a] Fatty acids of different chain length and saturation were produced. The following table calculates the molar productivity of each fatty acid

Fatty acid	percentage	productivity mg/L/d	molar mass mmol/mg	Molar productivity µmol/L/d
10	0.6	0.6	172.3	3
12	19.9	19.6	200.3	98
14	20.9	20.6	228.4	90
16	43.3	42.7	256.4	166
18:3	1.4	1.4	278.4	5
18:2	1.1	1.1	280.5	4
18:1	1.5	1.5	282.5	5
18	11.3	11.1	284.5	39
Total	100			411

[b] Fatty alcohols of different chain length and saturation were produced. The following table calculates the molar productivity of each fatty alcohol.

Fatty alcohol	percentage	productivity mg/L/d	molar mass mmol/mg	Molar productivity µmol/L/d
16	20	0.0022	242.0	0.00920
18	80	0.0089	270.0	0.03299
Total	100	0.0111		0.0422

*Note productivity of 0.0111 mg/L/d was calculated based on the reported production of 200 µg/L over 18 days.

The following table shows calculation for converting productivity reported in the literature into carbon molar productivity

Units	Molar productivity μmol/L/d	Numbers of carbons	Carbon molar productivity mmol/L/d
n-butanol	452	4	1.8
fatty acid	411	10 – 18	6.1
3-hydroxy-butyrate	244	4	1.0
acetone	155	3	0.5
fatty alcohol	0.0422	16 – 18	0.0024