

SuppSheet5. Measurements, calculated rates, and yields across varied initial pH conditions for generalist, producers, and consortia.

Rates and yields are calculated over exponential growth phase.

code and pdf file of equations available at: <https://github.com/rosspcarlson/becketal-syntheticconsortia.git>

pH	Generalist		Lactate Producer		Lactate Consortium		Acetate Producer		Acetate Consortium	
Average growth rate (h ⁻¹)										
7.5	0.37	-0.01	0.14	-0.01	0.15	0	0.23	-0.02	0.25	0
7	0.53	-0.01	0.13	-0.01	0.22	-0.01	0.34	-0.01	0.27	-0.01
6.5	0.45	0	0.17	0	0.21	-0.01	0.33	-0.01	0.23	-0.01
6	0.46	-0.01	0.11	0	0.16	0	0.33	-0.01	0.18	0
Biomass yield (g CDW produced (g glucose consumed) ⁻¹)										
7.5	0.32	-0.08	0.05	-0.01	0.23	-0.13	0.18	-0.02	0.33	-0.19
7	0.42	-0.03	0.07	-0.04	0.34	-0.04	0.18	-0.01	0.4	-0.21
6.5	0.39	-0.01	0.07	-0.04	0.29	-0.02	0.14	-0.01	0.22	-0.02
6	0.56	-0.31	0.01		0.4	-0.06	0.23	-0.01	0.26	-0.03
Substrate consumption rate (mmol glucose (g CDW produced) ⁻¹ h ⁻¹)										
7.5	6.7	-1.46	14.96	-3.68	4.13	-1.87	7.32	-0.76	4.96	-2.2
7	6.99	-0.6	12.7	-5.27	3.63	-0.45	10.59	-0.97	4.36	-1.92
6.5	6.44	-0.16	19.47	-16.89	4.05	-0.33	13.43	-0.81	5.8	-0.68
6	5.6	-2.73	55.63		2.21	-0.27	7.94	-0.71	3.9	-0.34
Organic acid production rate (mmol organic acid produced (g CDW produced) ⁻¹ h ⁻¹)										
7.5	7.04	-0.24	25.84	-0.45	10.88	-2.42	9.41	-0.73	7.42	-0.25
7	3.6	-0.13	24.57	-0.79	NA	NA	13.21	-0.84	8.63	-0.33
6.5	3.75	-0.13	28.68	-1.17	NA	NA	10.63	-0.33	5.74	-0.78
6	3.46	-0.13	21.22	-1	NA	NA	8.87	-0.24	2.68	-0.64
Organic acid/biomass selectivity (g organic acid produced (g CDW produced) ⁻¹)										
7.5	1.13	-0.02	16.79	-0.43	6.84	-1.56	2.38	-0.04	1.77	-0.08
7	0.4	-0.02	17.16	-0.2	NA	NA	2.28	-0.06	1.91	-0.09
6.5	0.49	-0.02	15.06	-0.77	NA	NA	1.91	-0.02	1.45	-0.16
6	0.44	-0.02	17.07		NA	NA	1.58	-0.06	0.87	-0.23
Organic acid yield (g organic acid produced (g glucose consumed) ⁻¹)										
7.5	0.36	-0.1	0.89	-0.19	1.45	-0.45	0.42	-0.03	0.6	-0.36
7	0.17	-0.02	1.15	-0.66	NA	NA	0.41	-0.02	0.78	-0.45
6.5	0.19	-0.01	1.13	-0.68	NA	NA	0.26	-0.02	0.32	-0.02
6	0.24	-0.12	0.18		NA	NA	0.37	-0.03	0.23	-0.05
Total glucose consumed (mmol glucose consumed)										
7.5	1.86	-0.44	2.71	-0.78	12.42	-1.98	2.03	-0.27	1.5	-0.67
7	2.89	-0.35	1.85	-0.78	5.38	-0.8	2.48	-0.18	0.92	-0.44
6.5	2.37	-0.03	0.9	-0.75	3.61	-0.26	1.93	-0.14	1.44	-0.26
6	0.98	-0.51	1.67		1.19	-0.18	0.79	-0.05	1.2	-0.11
Maximum biomass concentration (g CDW L ⁻¹)										
7.5	0.13	-0.01	0.04	0	0.25	-0.04	0.09	-0.01	0.12	0
7	0.31	-0.01	0.03	0	0.48	-0.02	0.12	0	0.1	-0.01
6.5	0.19	0	0.02	0	0.26	-0.01	0.08	0	0.09	-0.01
6	0.11	0	0.01	0	0.14	-0.01	0.05	0	0.08	-0.01
Biomass yield per net H ⁺ produced (g CDW (mol H ⁺) ⁻¹)										
7.5	1.26	-0.04	0.14	-0.01	0.42	-0.12	0.65	-0.03	0.96	-0.03
7	1.43	-0.06	0.09	0	2.16	-0.02	0.49	-0.01	0.79	-0.01
6.5	0.76	-0.01	0.09	-0.01	0.91	-0.01	0.31	0	0.6	-0.16
6	0.46	-0.02	0.03	0	0.61	-0.05	0.21	0	0.35	-0.03