Supplementary Materials: Sustainable Production of Algal Biomass and Biofuels Using Swine Wastewater in North Carolina, US

Bo Zhang, Lijun Wang, Bilal A. Riddicka, Rui Li, Justin R. Able, Nana Abayie Boakye-Boaten and Abolghasem Shahbazi

Table S1. Inventory data for estimation of algal biomass production from swine wastewater.

Hog Heads in NC	8.4 Million
Hog waste with 5% total solid (TS)	1.2 ton/year
Water for flush collection	1.2 ton/year/head
Total swine wastewater NC	10.1 million·m^3/year
Depth of water in raceway pond	0.2 m (20 cm)

Table S2. Nutrients removal by *C. debaryana* AT24 after 15–30 days culture.

T	LI	LD	15 Days			30 Days		
(°C)		(h)	COD (mg/L)	NH3-N (ppm)	*p* (ppm)	COD (mg/L)	NH3-N (ppm)	*p* (ppm)
25	150	24	1520–2066	10.5	88–122	603–792	7.8–9.5	21.45
25	300	24	805–1226	7.7–15.3	90–126	798–815	7–8.5	n/a
25	600	24	903–930	11.3–15.2	n/a	n/a	9.6–11.7	n/a
25	900	24	855–1184	10.3–11.3	n/a	n/a	6.2–9.1	n/a
15	150	24	1493–1583	12.4–13.6	99–125	226–633	7.5–7.7	95–104
15	300	24	1593–2186	12.4–14.1	107–123	253–713	9.0–9.6	83–115
15	600	24	1393	11.8–16.6	104–119	313–540	5.4–7.8	93–113
15	900	24	946–2086	11.7–13.8	101–127	1046–1166	8.4–12.3	95–117
20	150	24	366.6–900	9.3–9.8	100–120	n/a	10.8–11.9	95–122
20	150	12	780	8–9.8	113–124	n/a	8.13–10.1	73–96
20	150	2	686	8.9	103–125	746	7–9.73	74–90
20	50	12	760–913	7.5–10.8	109–125	n/a	7–8.13	86–112
20	150	6	286–873	2.6–4.8	108–122	293–1386	2.2–6.2	82.1–95.8
20	100	6	946–1293	2.8–4.5	96–119	173–1633	2.4–3.6	69.7–98
25	150	12	420–503	7.9–17.6	94–124	383–400	4.2–6.2	102–125
25	600	12	340	4–11.3	61.9–78.2	436–573	3.1–3.5	68–87.5
25	150	6	293–446	23–27	92.9–104	420	4.7–7.5	107.5–120
25	600	6	786–1370	3.8–17.4	72.2–84.5	420–656	4.2–11.6	108–119.7
20	150	12	886–903	4.5–6.6	96.3–118	946–1183	6.3–7.2	101–112.7
20	600	12	616–1270	5.3–5.9	74.4–113	620–890	4.8–6.1	94.6–118.9
20	150	6	786–946	5.4–6.2	85.5–111	1023–1078	6–6.6	84.7–98.2
20	600	6	850–903	3.4–7	80.6–126	723–786	5.9–7.1	72–107.8
15	150	12	836–1240	7.3–7.7	123–124	n/a	n/a	n/a
15	600	12	476–786	3.8–4.5	117–125	n/a	n/a	n/a
15	150	6	526–673	4.2–6.3	104–117	n/a	n/a	n/a
15	600	6	550–666	5.2–5.6	113–118	n/a	n/a	n/a
Removal ratio	Range		10%–87%	65%–94%	3%–52%	29%–90%	75.6%–95%	4%–48%
	Average		59%	81.4%	17.4%	69.3%	85.6%	26.1%

T: Temperature (°C); LI: Light intensity (μmol·$m^{-2}s^{-1}$); LD: Light duration (h/day); COD: chemical oxygen demand (mg/L); NH_3-N (ppm); *p* (ppm).