



Figure S1. Schematic aeration and bioaerosol capture systems: a) Bench scale, 250 mL vessel, mechanical agitation; b) bench scale, diffused aeration with 1 L vessel, c) pilot scale, diffused aeration; d) the pilot-scale WWTP diagram; Only the primary clarifier, the aeration basin, and the secondary clarifier were used in this study.

Supplementary Tables

Table S1: Synthetic wastewater composition

Compound	Formula	Concentration (mg/L)
Organic Constituents		
Casein	N/A	47
Tryptone	N/A	47
Starch	N/A	84.4
Sodium Acetate	$C_2H_3O_2Na \cdot 3H_2O$	31.9
Glycerol*	$C_3H_8O_3$	12
Caproic Acid*	$C_6H_{12}O_2$	11.6
Inorganic Constituents		
Ammonium Sulfate	$(NH_4)_2SO_4$	116.0
Magnesium Sulfate	$MgSO_4 \cdot 7H_2O$	69.6
Calcium Chloride	$CaCl_2 \cdot 2H_2O$	22.5
Potassium Phosphate	K_2HPO_4	27.6
Ferric Chloride	$FeCl_3$	11.0
Cupric Sulfate	$CuSO_4 \cdot 5H_2O$	0.09
Sodium Molybdate	$Na_2MoO_4 \cdot 2H_2O$	0.15
Manganese Sulfate	$MnSO_4 \cdot H_2O$	0.13
Zinc Chloride	$ZnCl_2$	0.23
Cobalt Chloride	$CoCl_2 \cdot 6H_2O$	0.42

Table S2. P values

Mechanical Agitation Experiments								
Rotating speed	0.001 (1200 rpm vs 1100 rpm)	7.75E-05 (1200 rpm vs. 1000 rpm)	6.22E-05 (1200 rpm vs. 900 rpm)	0.00047 (1100 rpm vs 900 rpm)	0.02 (1000 rpm vs. 900 rpm)	0.001 (1100 rpm vs. 1000 rpm)		
Aeration Experiments, small vessel, bench scale								
FFCM effects	0.000616 (no FFCM vs. 0.5 g FFCM; low flow rate)	0.000626 (no FFCM vs. 0.3 g FFCM; low flow rate)	0.979 (0.5 g FFCM vs. 0.3 g FFCM; low flow)	0.0176 (no FFCM vs. 0.5 g FFCM; high flow)	0.020 (no FFCM vs. 0.3 g FFCM; high flow)	0.113 (0.5g FFCM vs. 0.3 g FFCM; high flow)		
Flow rate effects (no FFCM)	0.0407 (0.458 L/min vs. 0.854 L/min)							
Aeration Experiments, large vessel, bench scale								
FFCM effects	0.0047 (no FFCM vs. small beads @ 0.5 L/min)	0.0065 (no FFCM vs. large beads @0.5 L/min)	0.008 (no FFCM vs. small beads @0.65 L/min)	0.006 (no FFCM vs. large beads @0.65 L/min)	0.0095 (no FFCM vs. small beads @ 0.85 L/min)	0.007 (no FFCM vs. large beads @ 0.85 L/min)	0.0099 (no FFCM vs. small beads @ 1.0 L/min)	0.0096 (non FFCM vs. large beads @1.0 L/min)
Flow rate effects (no FFCM)	0.65 (0.5 L/min vs. 0.65 L/min)	0.0017 (0.5 L/min vs. 0.85 L/min)	0.0018 (0.5 L/min vs. 1.0 L/min)	0.042 (0.65 L/min vs. 0.85 L/min)	0.025 (0.65 L/min vs. 1.0 L/min)	0.04 (0.85 L/min vs. 1.0 L/min)		