

Supplementary Material

Responses of nitrogen removal, extracellular polymeric substances (EPS) and physicochemical properties of activated sludge to different free ammonia (FA) concentrations

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Table S1. The correlation matrix among microorganism and EPS and its components.

		<i>Thauera</i>	<i>Lewinella</i>	<i>Zoogloea</i>	<i>Nitrospira</i>	<i>Azoarcus</i>	<i>Acidovorax</i>	<i>Nitrosomonas</i>	<i>Phaeodactylibacter</i>	<i>Denitratisoma</i>	<i>Sulfuritalea</i>	<i>Dechloromonas</i>	<i>Melioribacter</i>
<i>Thauera</i>	R ²	1	.738**	-.936**	-.929**	-.883**	-0.344	0.295	.744**	0.054	-.912**	-.853**	0.485
	<i>p</i>		0.006	0	0	0.0000	0.274	0.352	0.006	0.868	0	0	0.11
<i>Lewinella</i>	R ²		1	-.826**	-.719**	-.678*	-.715**	.627*	0.431	-0.314	-.741**	-.632*	-0.094
	<i>p</i>			0.001	0.008	0.015	0.009	0.029	0.161	0.321	0.006	0.027	0.771
<i>Zoogloea</i>	R ²			1	.961**	.949**	0.329	-.601*	-0.488	0.247	.977**	.925**	-0.368
	<i>p</i>				0	0	0.296	0.039	0.107	0.439	0	0	0.24
<i>Nitrospira</i>	R ²				1	.977**	0.17	-0.499	-0.521	0.2	.978**	.961**	-0.535
	<i>p</i>					0	0.597	0.099	0.083	0.533	0	0	0.073
<i>Azoarcus</i>	R ²					1	0.074	-0.558	-0.428	0.282	.980**	.995**	-0.554
	<i>p</i>						0.818	0.059	0.165	0.374	0	0	0.062
<i>Acidovorax</i>	R ²						1	-0.22	-0.355	0.063	0.172	0.014	0.549
	<i>p</i>							0.492	0.257	0.845	0.592	0.966	0.064

<i>Nitrosomonas</i>	R ²	1	-0.341	-.849**	-.600*	-0.553	-0.191
	<i>p</i>		0.278	0	0.039	0.062	0.551
<i>Phaeodactylibacter</i>	R ²		1	.629*	-0.44	-0.39	0.464
	<i>p</i>			0.029	0.152	0.21	0.128
<i>Denitratisoma</i>	R ²			1	0.299	0.291	0.337
	<i>p</i>				0.345	0.359	0.285
<i>Sulfuritalea</i>	R ²				1	.962**	-0.48
	<i>p</i>					0	0.114
<i>Dechloromonas</i>	R ²					1	-0.563
	<i>p</i>						0.057
<i>Melioribacter</i>	R ²						1
	<i>p</i>						
<i>Delftia</i>	R ²						
	<i>p</i>						
<i>Variovorax</i>	R ²						
	<i>p</i>						

<i>Halomonas</i>	R^2
	p
<i>Planctomyces</i>	R^2
	p
<i>Pseudomonas</i>	R^2
	p

(Continued Table)

		<i>Delftia</i>	<i>Variovorax</i>	<i>Halomonas</i>	<i>Planctomycetes</i>	<i>Pseudomonas</i>	<i>LB-EPS</i>	<i>TB-EPS</i>	<i>PN</i>	<i>PS</i>	<i>EPS</i>	<i>CST</i>	<i>SVI</i>	<i>SRF</i>
<i>Thauera</i>	R ²	0.308	-0.14	.823**	-.845**	.833**	0.355	0.162	.752**	-0.097	0.24	-.715**	-.855**	-.643*
	<i>p</i>	0.331	0.664	0.001	0.001	0.001	0.258	0.614	0.005	0.764	0.453	0.009	0	0.024
<i>Lewinella</i>	R ²	0.162	-0.507	0.534	-.579*	0.554	.729**	0.419	.814**	0.301	0.548	-.925**	-.776**	-.844**
	<i>p</i>	0.614	0.093	0.074	0.049	0.062	0.007	0.176	0.001	0.343	0.065	0	0.003	0.001
<i>Zoogloea</i>	R ²	-0.125	0.064	-.621*	.910**	-.639*	-.636*	-0.485	-.926**	-0.248	-0.555	.719**	.716**	.589*
	<i>p</i>	0.698	0.843	0.031	0	0.025	0.026	0.11	0	0.436	0.061	0.008	0.009	0.044
<i>Nitrospira</i>	R ²	-0.259	-0.069	-.584*	.948**	-.606*	-0.518	-0.43	-.873**	-0.165	-0.474	.591*	.660*	0.462

<i>Azoarcus</i>	<i>p</i>	0.4 17	0.83	0.046	0	0.03 7	0.085	0.163	0	0.608	0.12	0.043	0.019	0.131
	R ²	-0.2	-0.181	-0.477	.973**	-0.50 5	-0.554	-0.515	-.894**	-0.25	-0.542	0.517	0.567	0.368
	<i>p</i>	0.4 82	0.574	0.117	0	0.09 4	0.062	0.087	0	0.433	0.068	0.085	0.055	0.239
	R ²	-0.1 36	.948**	-0.53	-0.057	-0.55 3	-0.395	0.04	-0.287	-0.006	-0.125	.872**	.702*	.920**
<i>Nitrosomonas</i>	<i>p</i>	0.6 74	0	0.076	0.861	0.06 2	0.204	0.902	0.366	0.985	0.698	0	0.011	0
	R ²	-0.2 27	0.053	-0.15	-0.548	-0.11 2	.970**	.949**	.839**	.902**	.981**	-0.427	-0.08	-0.244
	<i>p</i>	0.4 78	0.869	0.642	0.065	0.72 9	0	0	0.001	0	0	0.166	0.805	0.445
<i>Phaeodactylibacter</i>	R ²	0.4 8	-0.348	.890**	-0.37	.863 **	-0.258	-0.505	0.161	-.695*	-0.424	-0.527	-.851**	-.597*
	<i>p</i>	0.1	0.268	0	0.236	0	0.418	0.094	0.618	0.012	0.17	0.078	0	0.04

<i>Denitratisoma</i>	R ²	0.039	-0.125	0.476	0.28	0.403	-.840**	-.900**	-.588*	-.934**	-.900**	0.159	-0.225	-0.004
	<i>p</i>	0.903	0.698	0.118	0.378	0.194	0.001	0	0.044	0	0	0.621	0.482	0.991
<i>Sulfuritalea</i>	R ²	-0.217	-0.099	-0.525	.972**	-0.547	-.610*	-0.53	-.930**	-0.274	-0.574	.602*	.624*	0.455
	<i>p</i>	0.497	0.759	0.08	0	0.066	0.035	0.076	0	0.389	0.051	0.038	0.03	0.137
<i>Dechloromonas</i>	R ²	-0.202	-0.239	-0.437	.965**	-0.469	-0.538	-0.523	-.876**	-0.261	-0.542	0.467	0.518	0.315
	<i>p</i>	0.529	0.455	0.156	0	0.124	0.071	0.081	0	0.413	0.069	0.126	0.084	0.319
<i>Melioribacter</i>	R ²	0.242	.599*	0.289	-.630*	0.254	-0.289	-0.08	0.182	-0.331	-0.162	0.236	-0.123	0.29
	<i>p</i>	0.448	0.04	0.363	0.028	0.427	0.363	0.804	0.571	0.293	0.615	0.46	0.704	0.361
<i>Delftia</i>	R ²	1	0.158	0.259	0.195	0.309	0.146	0.259	0.075	0.360	0.223	0.244	0.418	0.278

	<i>p</i>	0.624	0.416	0.544	0.329	0.65	0.416	0.816	0.251	0.487	0.444	0.176	0.381
<i>Variovorax</i>	R ²	1	-0.467	-0.318	-0.479	-0.131	0.293	0.011	0.195	0.138	.709**	.592*	.813**
	<i>p</i>		0.126	0.313	0.115	0.685	0.356	0.974	0.545	0.669	0.01	0.043	0.001
<i>Halomonas</i>	R ²		1	-0.414	.992**	-0.039	-0.341	0.315	-0.517	-0.234	-.691*	-.915**	-.737**
	<i>p</i>			0.181	0	0.905	0.278	0.319	0.085	0.463	0.013	0	0.006
<i>Planctomyces</i>	R ²			1	-0.429	-0.516	-0.539	-.870**	-0.266	-0.543	0.401	0.469	0.242
	<i>p</i>				0.164	0.086	0.071	0	0.403	0.068	0.196	0.124	0.449
<i>Pseudomonas</i>	R ²				1	0.01	-0.301	0.352	-0.476	-0.19	-.723**	-.927**	-.762**
	<i>p</i>					0.976	0.342	0.261	0.118	0.554	0.008	0	0.004

<i>LB-EPS</i>	R ²	1	.896**	.858**	.858**	.958**	-.577*	-0.215	-0.411
	<i>p</i>		0	0	0	0	0.05	0.502	0.185
<i>TB-EPS</i>	R ²			.762**	.955**	.986**	-0.176	0.154	0.026
	<i>p</i>			0.004	0	0	0.584	0.633	0.937
<i>PN</i>	R ²			1	.578*	.818**	-.651*	-0.498	-0.477
	<i>p</i>				0.049	0.001	0.022	0.1	0.117
<i>PS</i>	R ²				1	.942**	-0.091	0.316	0.083
	<i>p</i>					0	0.779	0.317	0.798
<i>EPS</i>	R ²					1	-0.333	0.017	-0.14
	<i>p</i>						0.29	0.958	0.664
<i>CST</i>	R ²						1	.888**	.977**
	<i>p</i>							0	0
<i>SVI</i>	R ²							1	.907**
	<i>p</i>								0

SRF

R^2

1

p

*. Correlation is significant at the 0.05 level.

**. Correlation is significant at the 0.01 level.