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New Insights into the Microbial Diversity of Cake Layer in Yttria Composite Ceramic Tubular Membrane in an Anaerobic Membrane Bioreactor (AnMBR)

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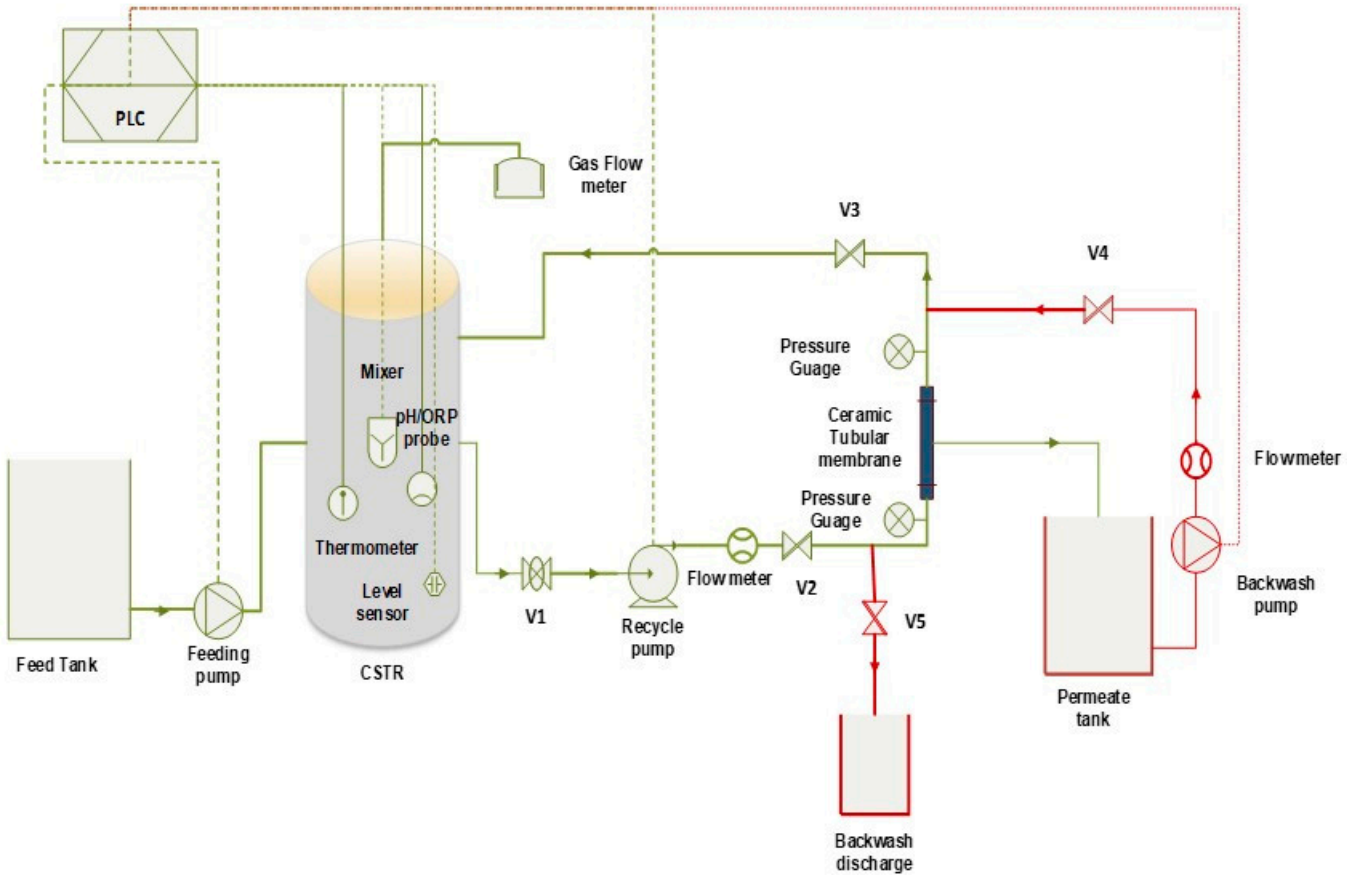

Figure S1. The Schematic diagram of the reactor setup.

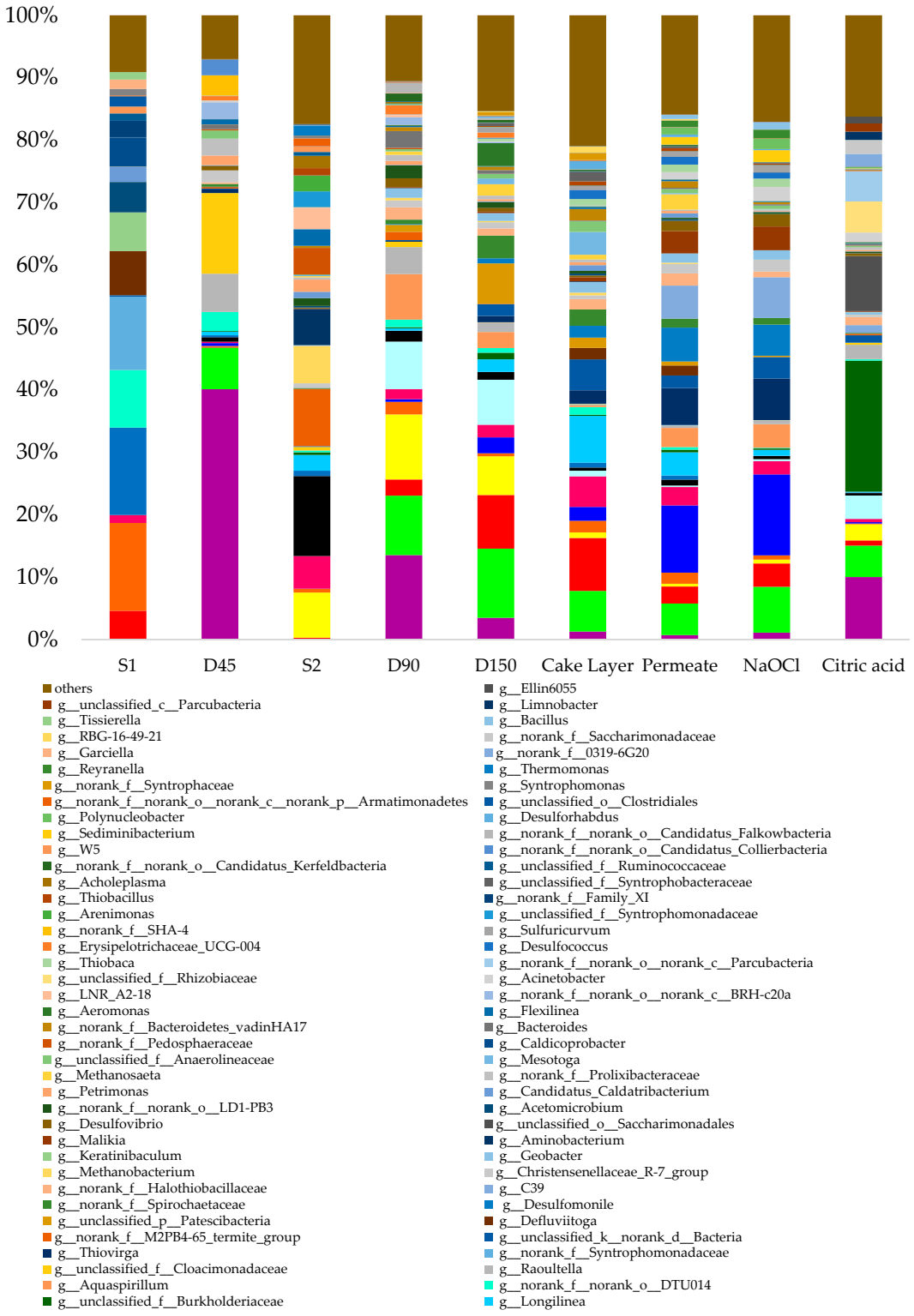

Figure S2. The microbial community bar plot analysis at genus level.

Outer Cake Layer (permeate cleaning)	Inner Cake Layer (NaOCl cleaning)	Pore blocking (Citric acid cleaning)
Bacteroidetes (10.65%)	*Bacteroidetes (11.80%)*	*Bacteroidetes (19.41%)*
Proteobacteria (51.96)	*Proteobacteria (58.31%)*	*Proteobacteria (45.20%)*
Firmicutes (11.29%)	*Firmicutes (13.84%)*	*Firmicutes (7.97%)*
Choroflexi (9.80%)	*Choroflexi (5.19%)*	*Choroflexi (1.91%)*
Spirochaetes (1.94%)	*Spirochaetes (1.16%)*	*Spirochaetes (0.29%)*
Actinobacteria (1.19%)	*Actinobacteria (1.10%)*	*Actinobacteria (0.92%)*
Thermotogae (1.78%)		*Pastescibacteria (0.84%)*
Atribacteria (0.69%)		
Synergistetes (1.32%)		
Euryarcheota (2.84%)		
Pastescibacteria (1.69%)		

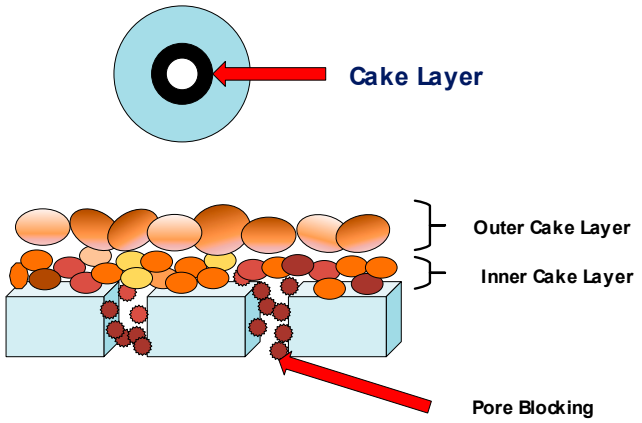

Figure S3. Conceptual visualization of yttria-based tubular ceramic membrane fouling bacterial diversity.

Table S1. The membrane flux recovery of cleaning solutions.

Parameter	Flux (LMH)	Flux recovery
Virgin membrane	234.50	--
Fouled membrane	16.36	--
After permeate cleaning	99	7%
NaOCl cleaning	218.18	86%
Citric acid cleaning	135.45	57.5%