Supplementary Information

Dynamic mechanisms of biocide-mediated biofouling control in two-stage RO systems in wastewater reclamation: Efficacy and microbial adaptation

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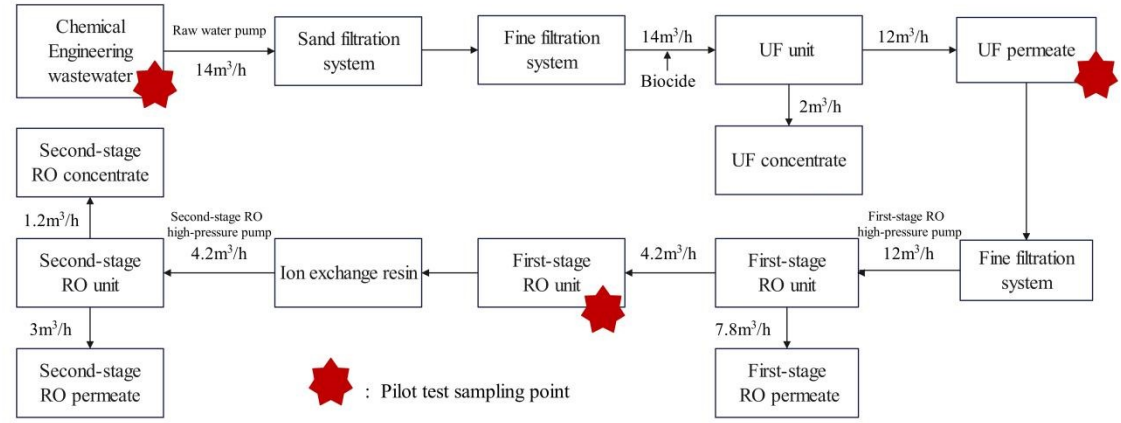

a: Sand filter tank, b: UF membrane module, c1: first stage RO membrane module, c2: second stage RO membrane module

Fig. S1 The setup of onsite dual stage RO water reclamation system

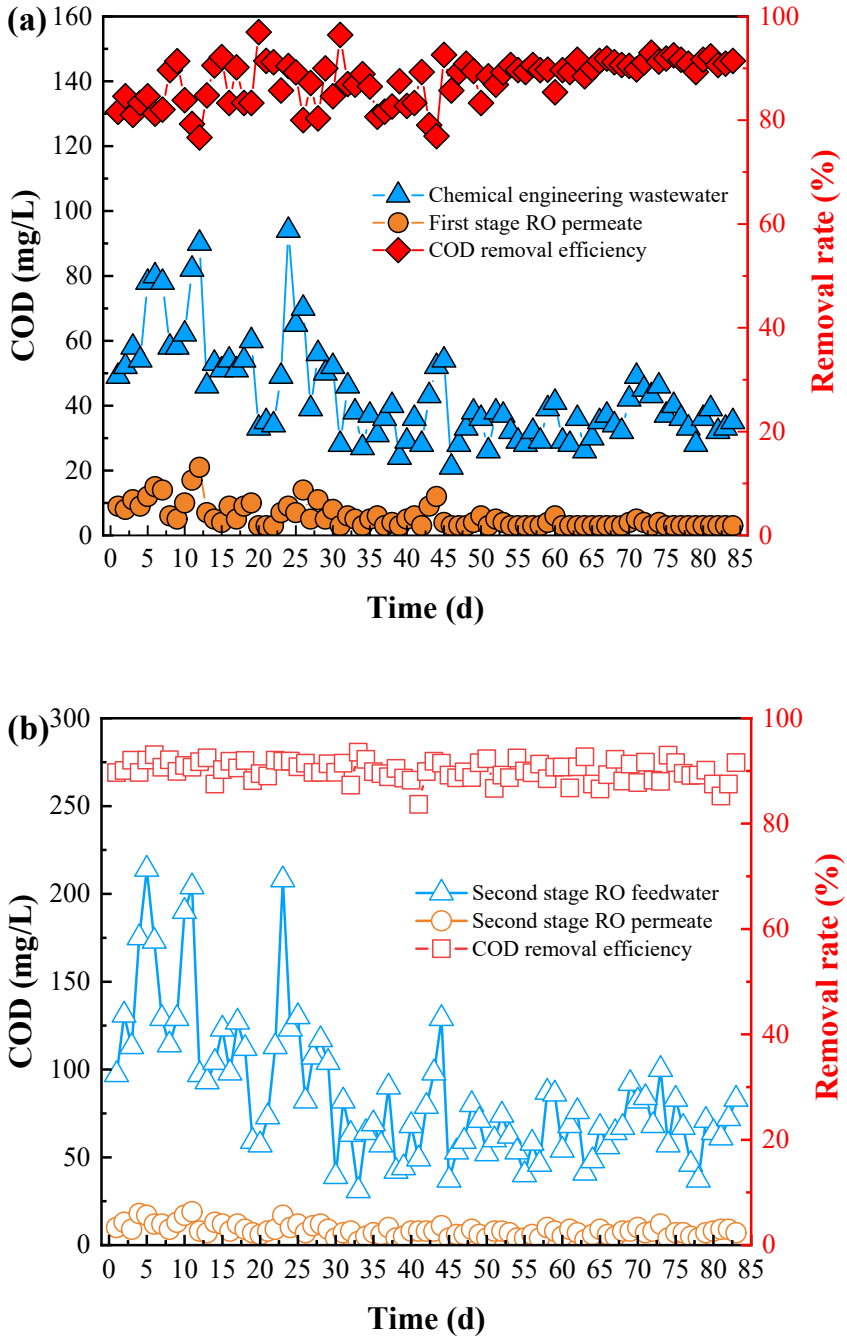

Fig. S2 Effect of the first (a) and second stage RO membrane unit (b) on COD removal

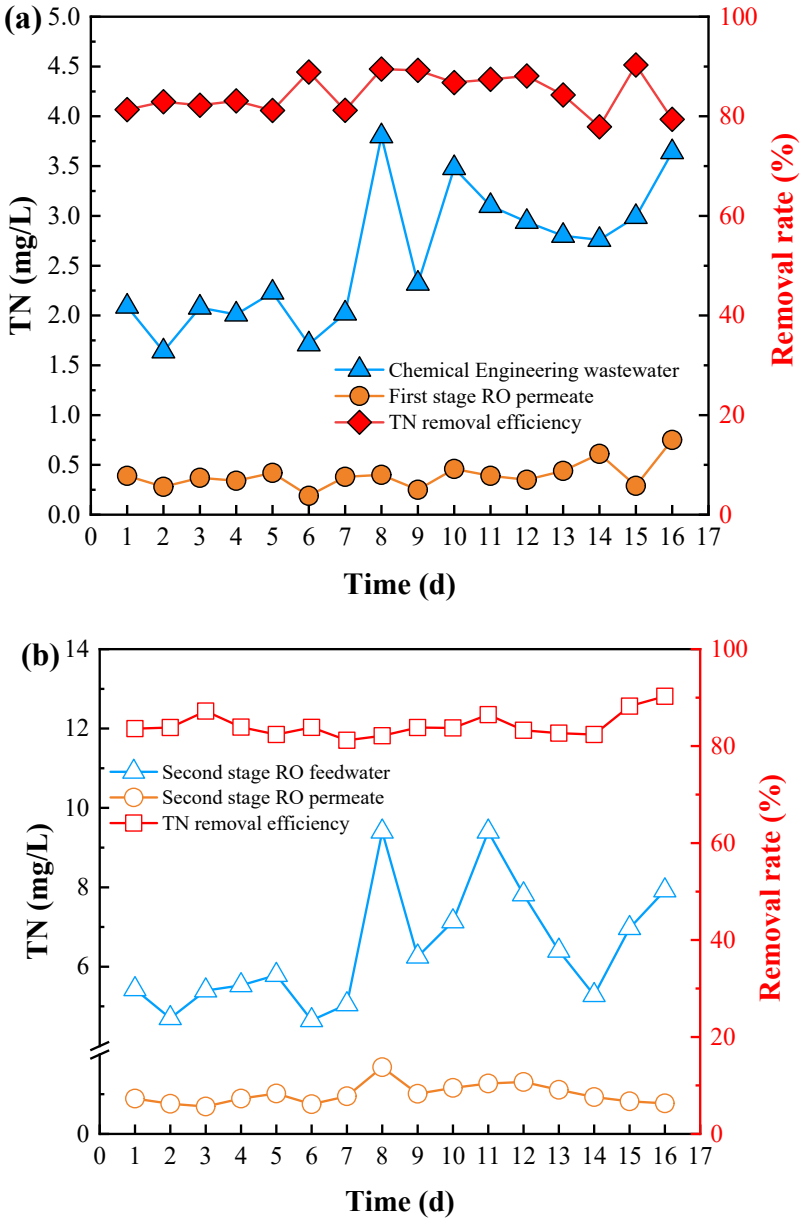

Fig. S3 Effect of the first (a) and second stage RO membrane unit (b) on TN removal

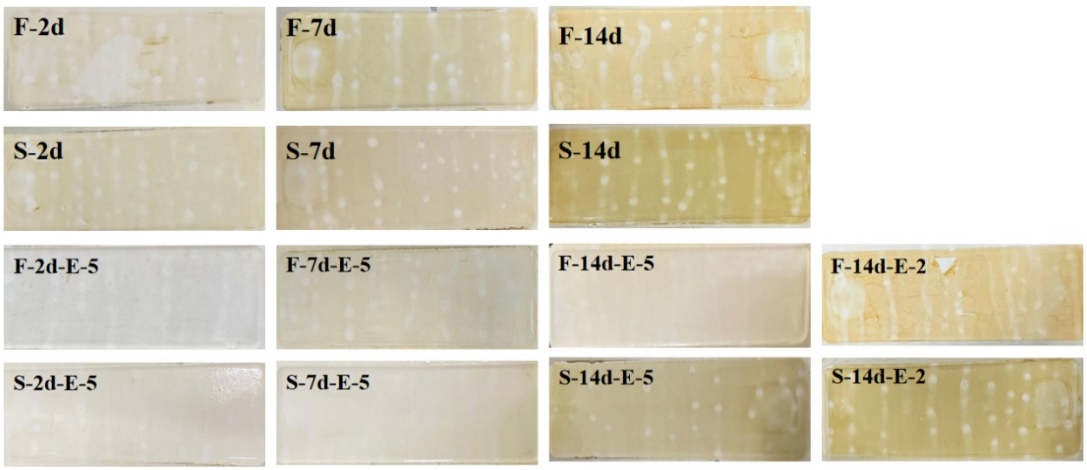

Fig. S4 The images of fouling layers during 14 days of filtration with and without dosing of biocide

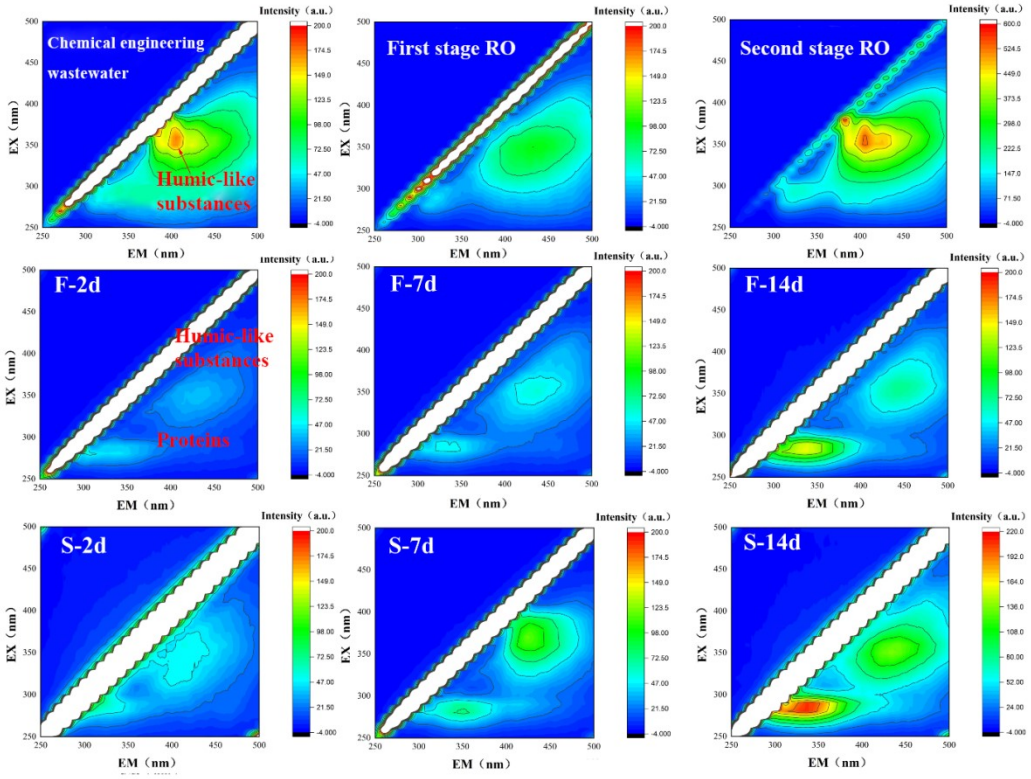

Fig. S5 The EEMs images of fouling layers during 14 days of filtration without dosing of biocide

Table S1 The quality of product water collected from laboratory scale RO filtration

Feedwater sources	EC (μS/cm)	COD (mg/L)	TN (mg/L)	TP (mg/L)	Ca^{2+} (mg/L)	Mg^{2+} (mg/L)
Primary wastewater	181.05	＜3	＜0.1	＜0.1	0.7	0.49
First stage RO	217.11	＜3	＜0.1	＜0.1	0.75	0.46
Second stage RO	242.51	＜3	＜0.1	＜0.1	1.62	0.92
First stage RO-2 mg/L MIT	227.12	＜3	＜0.1	＜0.1	0.73	0.55
First stage RO-5 mg/L MIT	175.24	＜3	＜0.1	＜0.1	0.68	0.42
Second stage RO-2 mg/L MIT	265.03	＜3	＜0.1	＜0.1	1.61	0.82
Second stage RO-5 mg/L MIT	235.24	＜3	＜0.1	＜0.1	1.59	0.85

Table S2 The meaning of sample numbers in experiments

Sample numbers	The meaning of sample numbers in experiments
F-2d	First stage RO on day 2, membrane samples (untreated)
F-7d	First stage RO on day 7, membrane samples (untreated)
F-14d	First stage RO on day 14, membrane samples (untreated)
S-2d	Second stage RO on day 2, membrane samples (untreated)
S-7d	Second stage RO on day 7, membrane samples (untreated)
S-14d	Second stage RO on day 14, membrane samples (untreated)
F-2d-E-5	First stage RO on day 2, membrane samples (after the addition of 5 mg/L biocide)
F-7d-E-5	First stage RO on day 7, membrane samples (after the addition of 5 mg/L biocide)
F-14d-E-5	First stage RO on day 14, membrane samples (after the addition of 5 mg/L biocide)
F-14d-E-2	First stage RO on day 14, membrane samples (after the addition of 2 mg/L biocide)
S-2d-E-5	Second stage RO on day 2, membrane samples (after the addition of 5 mg/L biocide)
S-7d-E-5	Second stage RO on day 7, membrane samples (after the addition of 5 mg/L biocide)
S-14d-E-5	Second stage RO on day 14, membrane samples (after the addition of 5 mg/L biocide)
S-14d-E-2	Second stage RO on day 14,membrane samples (after the addition of 2

mg/L biocide)