Comparison of different coagulants to improve membrane distillation performance for landfill leachate concentrate treatment

Supplementary Data

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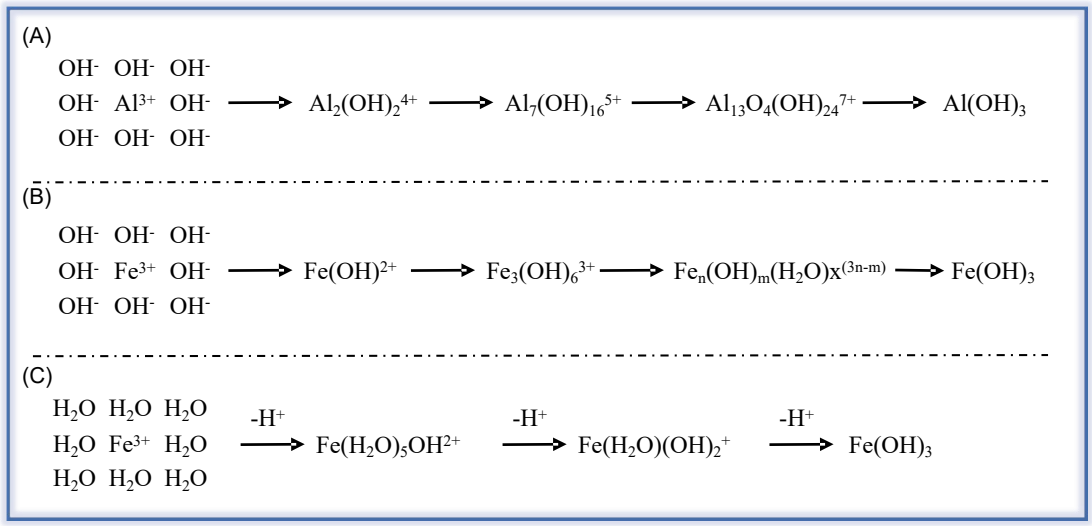

Fig. S1: Hydrolysis of PAC (A), PFS (B) and $FeCl_3$ (C).

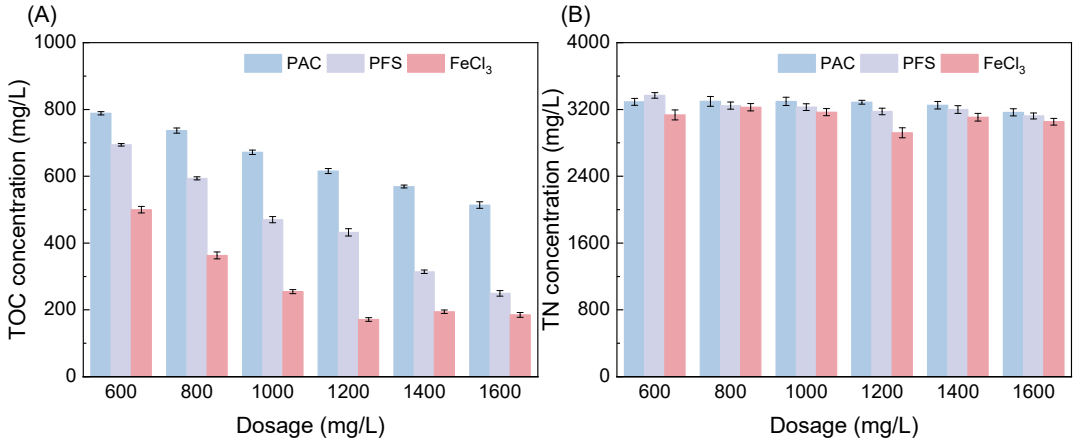

Fig. S2: Effect of coagulation on the concentration of TOC (A) and TN (B) in landfill leachate concentrate. Three coagulants, including PAC, PFS and $FeCl_3$, were added to leachate concentrate and then mixed rapidly at 250 r/min for 2 min, slowly at 60 r/min for 10 min before natural settlement for approximately 30 min under the room temperature.

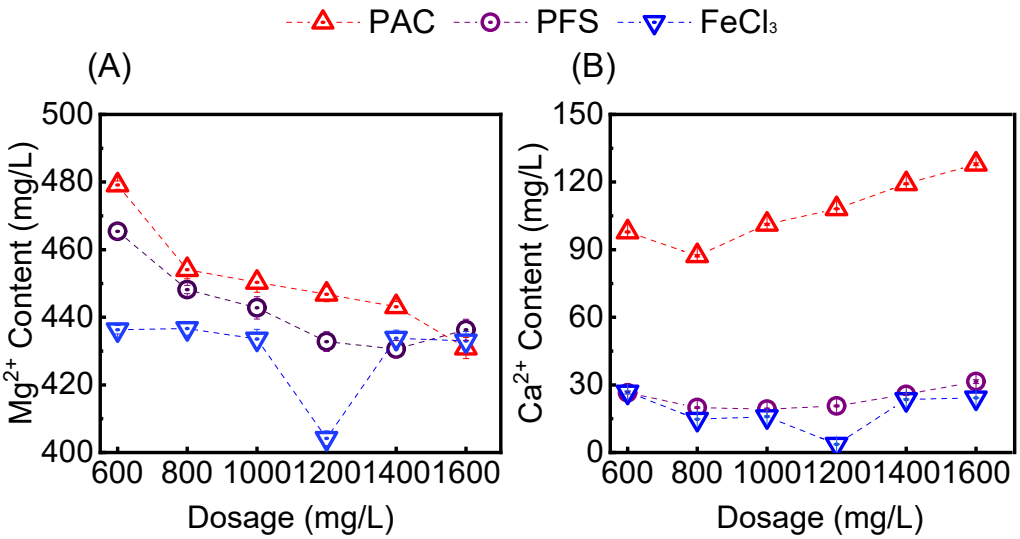

Fig. S3: Removal of Mg^{2+} and Ca^{2+} from landfill leachate concentrate via coagulation at different dosages. Experimental conditions were shown in the caption of Fig. S2.

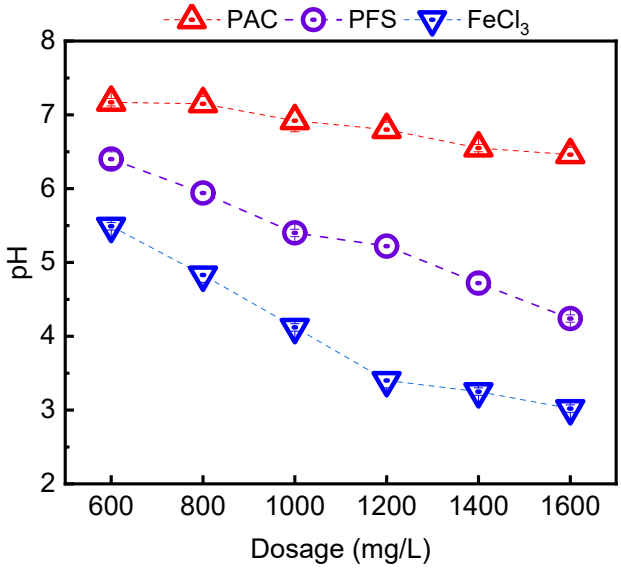

Fig. S4: Effect of coagulation on the pH of landfill leachate concentrate. Experimental conditions were shown in the caption of Fig. S2.

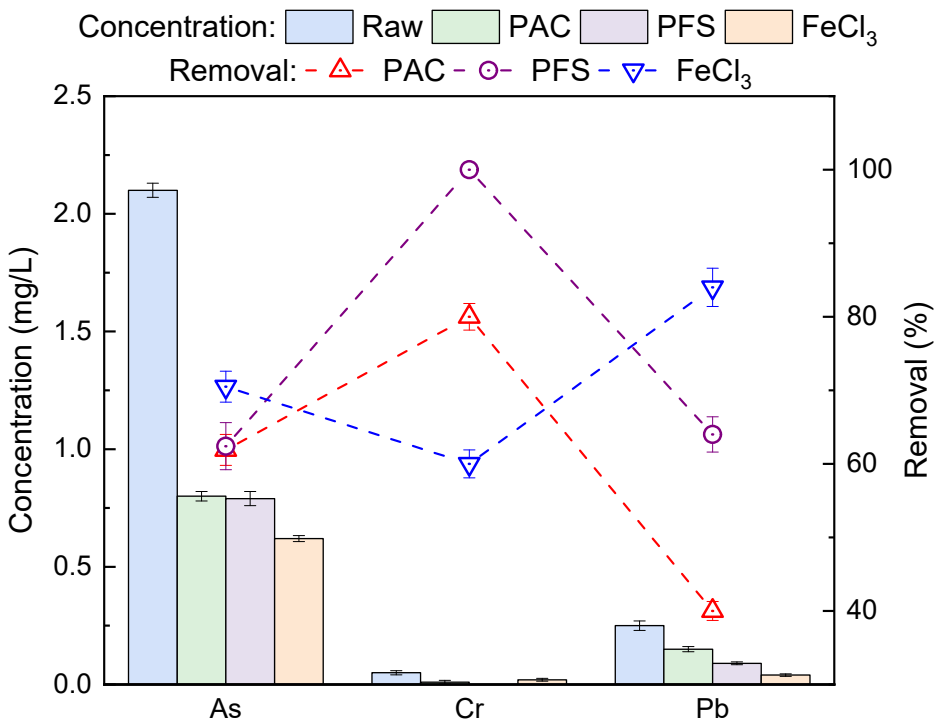

Fig. S5: Effect of coagulation on the removal of heavy metals in landfill leachate concentrate by coagulation and their concentration at 1200 mg/L. Experimental conditions were shown in the caption of Fig. S2.

Table S1: Elements onto the pristine and fouled membrane after MD operation for landfill leachate concentrate treatment via EDS measurement

Element/ Wt (%)	Pristine	Raw	PAC	PFS	$FeCl_3$
F	70.1	0.6	35.9		65.7
C	29.9	6.1	24.3		27.2
O		31.1	15.5	38.6	4.5
Na		17.4	5.8	18.1	1.3
Cl		20.5	5.4	16.1	0.6
N		11.8	4.2		
K		10.7	2.8	10.9	0.5
Ca		1.1	0.9		
Mg		0.7	0.7	2.0	0.3
Si			3.6	1.0	
S			0.2	1.3	
Fe				5.1	
Al			0.5		