Supporting information

Table S1 Representative raw water quality parameters at the start point (Danjiangkou reservoir).

Season	TOC (mg/L)	UV_{254} (a.u./cm)	SUVA (L/mg·m)	pH	Conductivity (μS/cm)
Summer	5.22 ± 0.18	0.031 ± 0.001	0.59 ± 0.01	7.58 ± 0.10	262.0 ± 1.3
Winter	4.27 ± 0.20	0.058 ± 0.006	1.36 ± 0.00	7.85 ± 0.11	253.0 ± 0.2

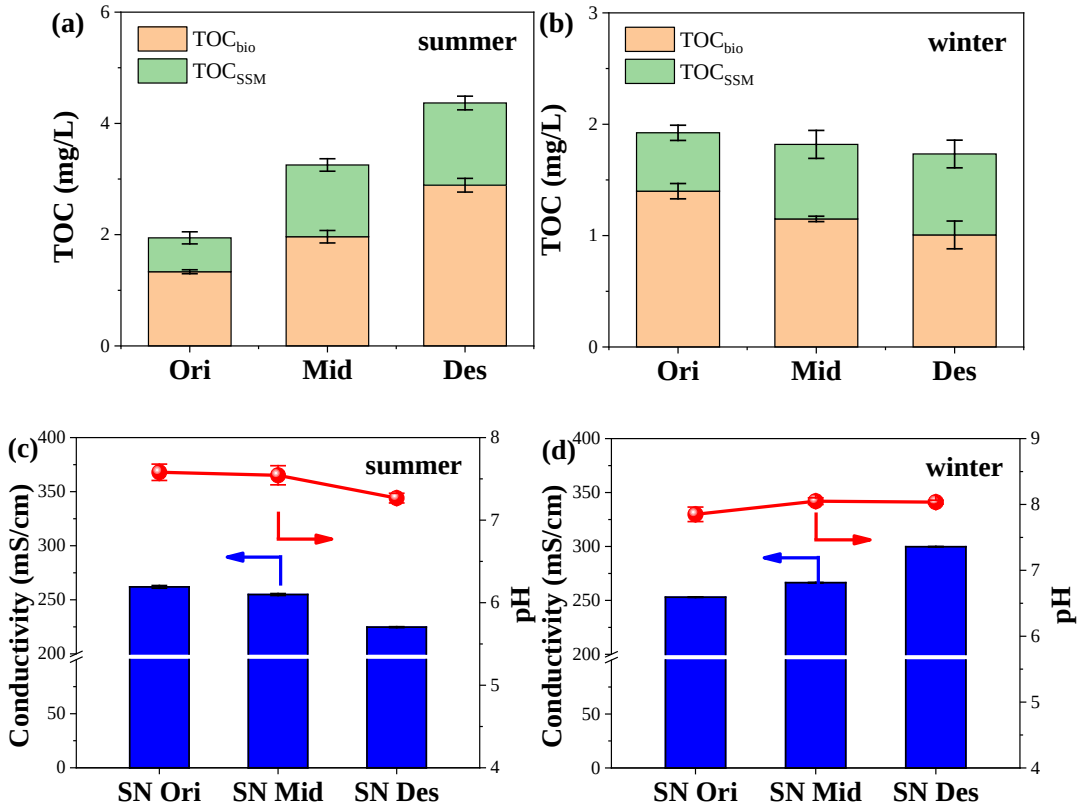

Fig. S1 The variation of raw water quality with flow distance: proportion of biopolymers and soluble small molecules (SSM) in the hydrophilic content of DOM in the summer (a) and winter (b) samples; The corresponding conductivity and pH values of the summer (c) and winter (d) samples.

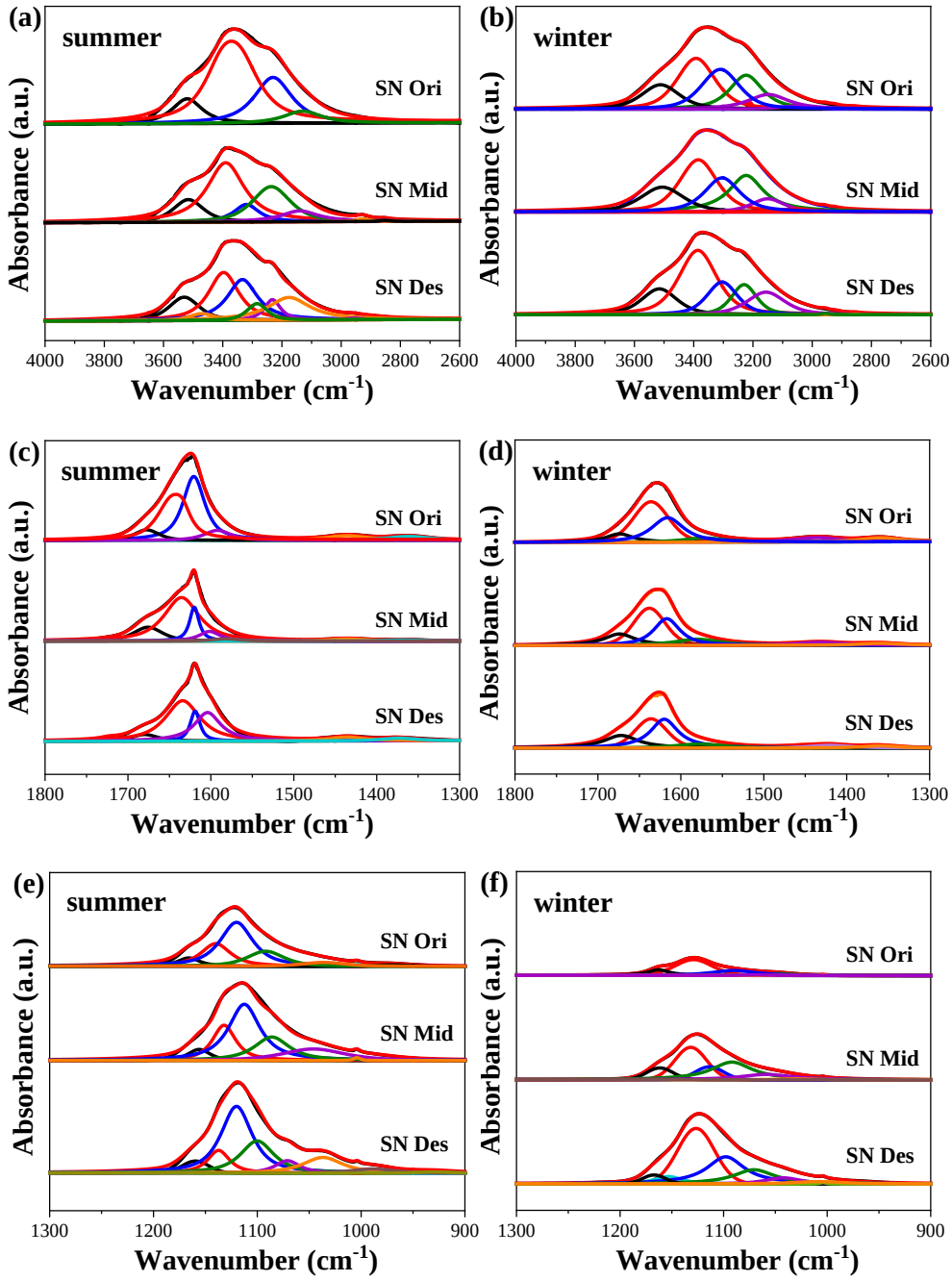

Fig. S2 The fitted peaks of FTIR spectra of the summer and winter samples in the range of 4000-2600 cm^{-1} (a)-(b), 1800-1300 cm^{-1} (c)-(d), and 1300-900 cm^{-1} (e)-(f), and their variation wth flow distance.

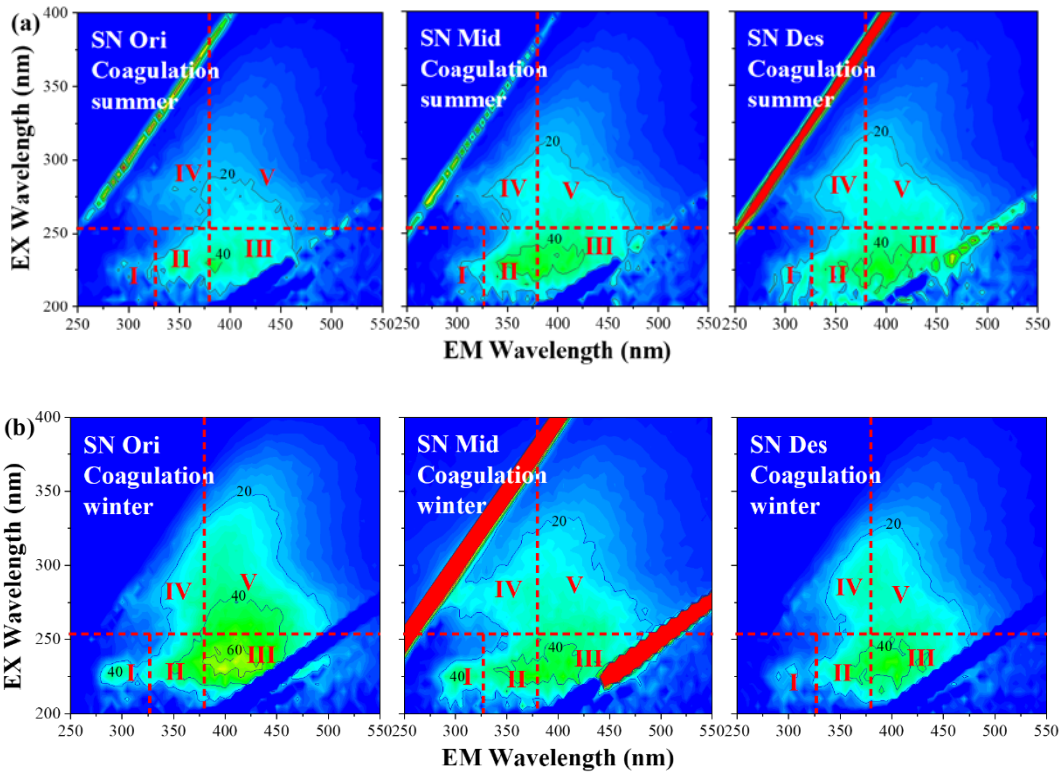

Fig. S3 The variation of EEM spectra of the summer (a) and winter (b) samples after coagulation, with flow distance.

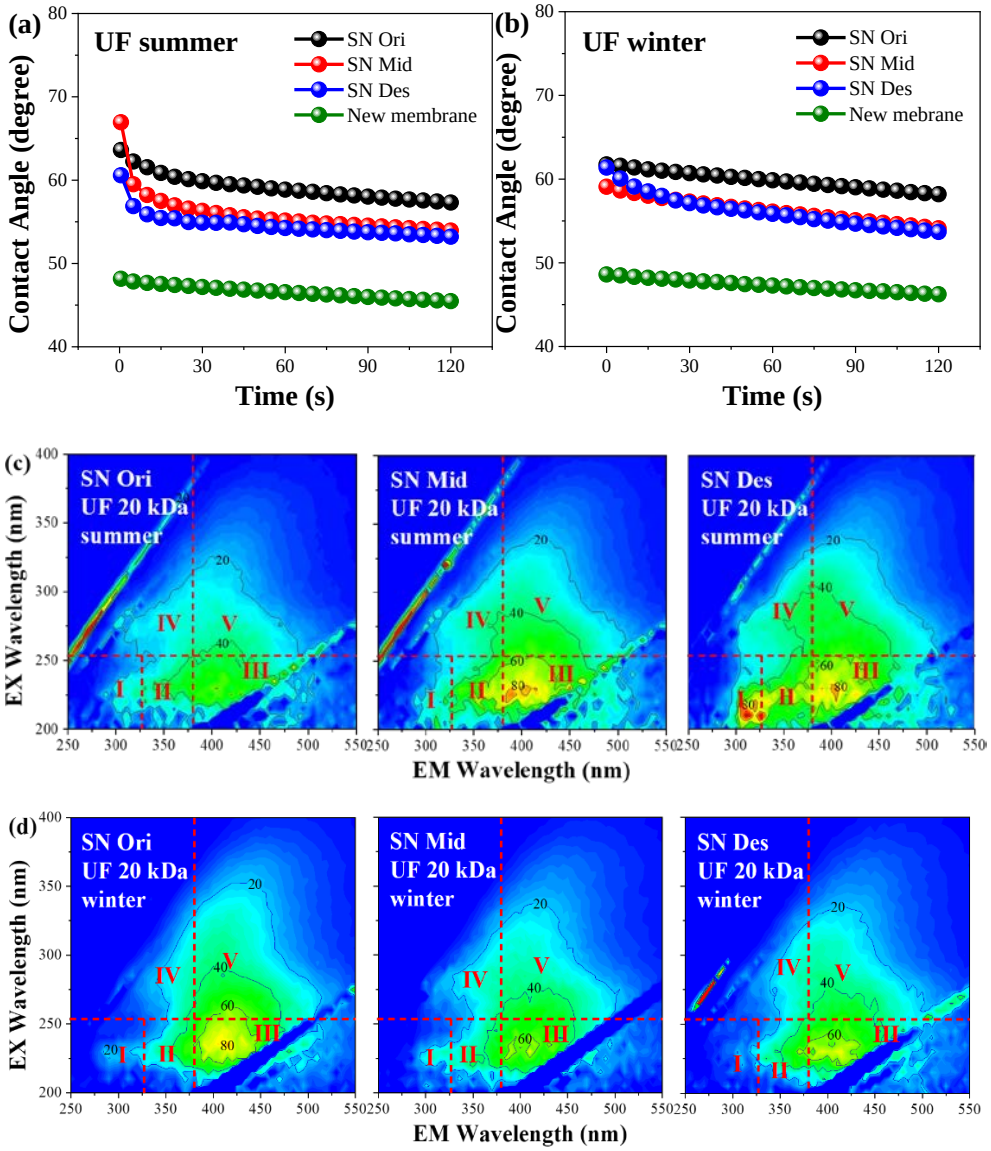

Fig. S4 The variation of dynamic contact angle of the summer (a) and winter (b) samples after UF, and the EEM spectra of the summer (c) and winter (d) samples after UF, with flow distance.

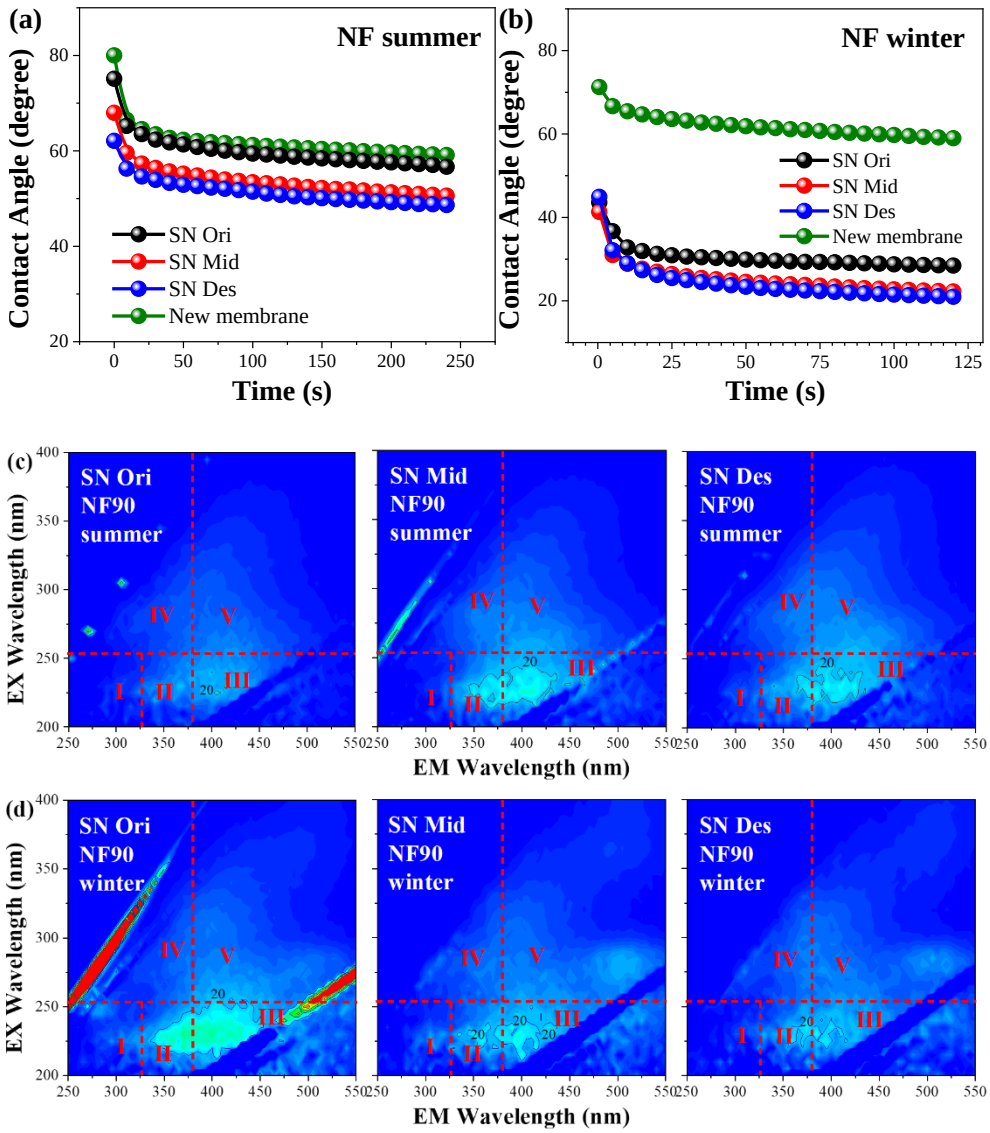

Fig. S5 The variation of dynamic contact angle of the summer (a) and winter (b) samples after NF, and the EEM spectra of the summer (c) and winter (d) samples after NF, with flow distance.

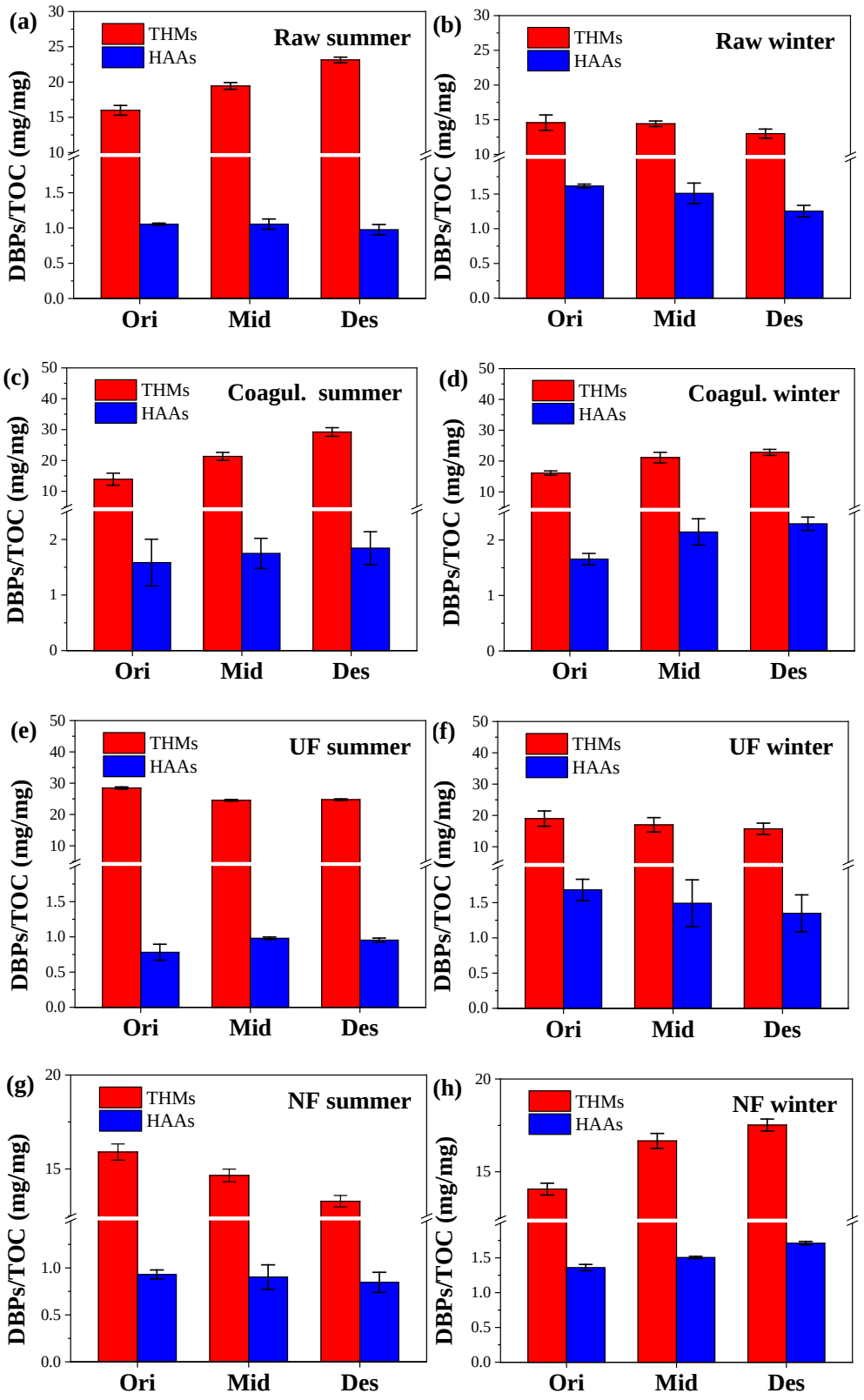

Fig. S6 The variation in specific DBP formation potential (DBPs/TOC) of the summer and winter samples without treatment (a)-(b), after coagulation (c)-(d), after UF membrane filtration (e)-(f), and after NF membrane filtration (g)-(h), with flow distance.