



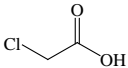
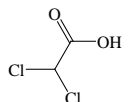
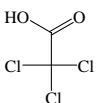
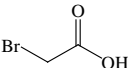
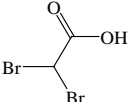
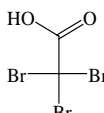
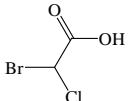
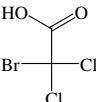
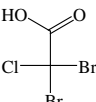
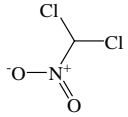
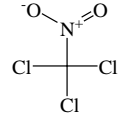
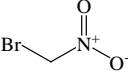
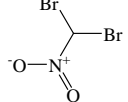
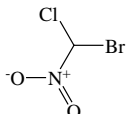
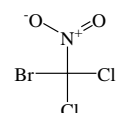
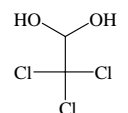
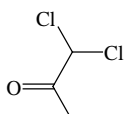
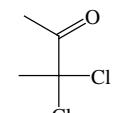
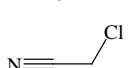
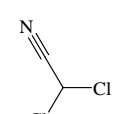
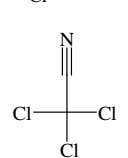

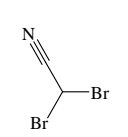
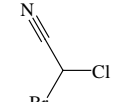


## Supporting Information

Table S1 The origin and purity of standard compounds of 35 aliphatic DBPs.

DBP types	Chemical Name	Purity	Structure	Supplier
<b><i>Trihalomethanes</i></b>	Trichloromethane	2 g/L in Methanol		Supelco
	Bromodichloromethane			
	Dibromochloromethane			
	Tribromomethane			
<b><i>Haloacetic acids</i></b>	Monochloroacetic acid	2 g/L in MtBE		Supelco
	Dichloroacetic acid			
	Trichloroacetic acid			
	Monobromoacetic acid			
	Dibromoacetic acid			
	Tribromoacetic acid			
	Bromochloroacetic acid			
	Bromodichloroacetic acid			
	Chlorodibromoacetic acid			
	<b><i>Halogenated nitromethanes</i></b>		Monochloronitromethane	

	Dichloronitromethane			
	Trichloronitromethane			
	Monobromonitromethane			
	Dibromonitromethane			
	Bromochloronitromethane			
	Bromodichloronitromethane			
<b><i>Haloacetaldehydes</i></b>	Chloral hydrate	5 g/L in Acetone		Accustandard
<b><i>Halogenated ketones</i></b>	1,1-dichloropropanone	5 g/L in Acetone		Accustandard
	1,1,1-trichloropropanone			
<b><i>Haloacetonitriles</i></b>	Monochloroacetonitrile			
	Dichloroacetonitrile			
	Trichloroacetonitrile	> 99.9%		J&K
	Monobromoacetonitrile			
	Dibromoacetonitrile			
	Bromochloroacetonitrile			

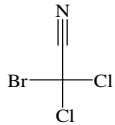
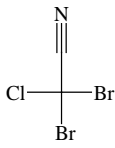
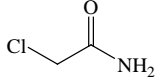
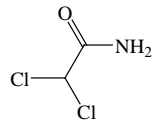
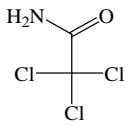
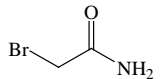
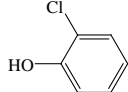
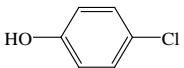
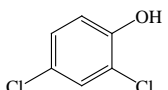
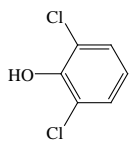
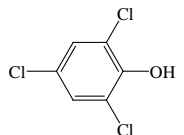
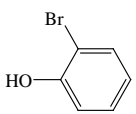
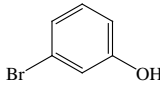
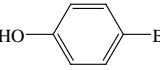
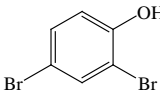
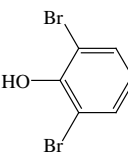
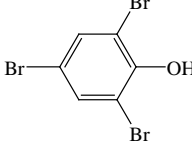
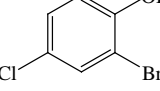
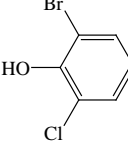
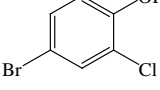
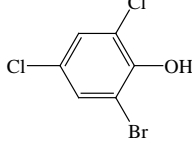
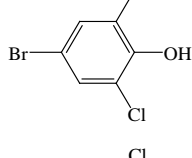
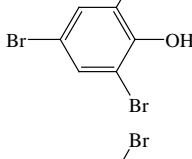
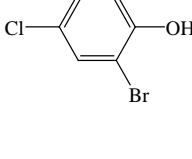
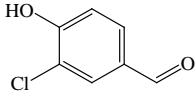
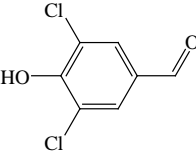
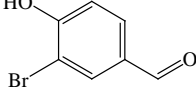
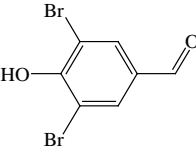
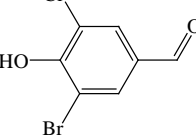
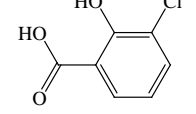
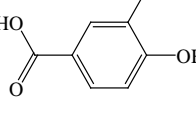
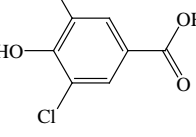
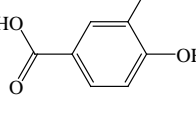
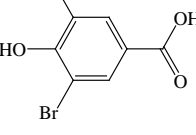
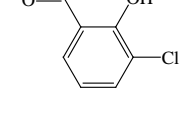
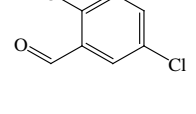
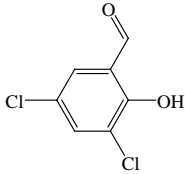
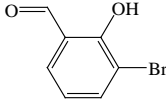
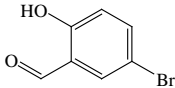
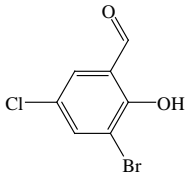
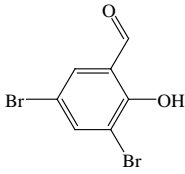
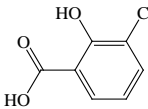
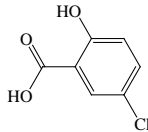
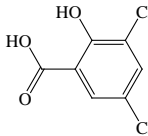
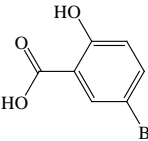
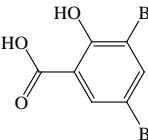
<b><i>Haloacetamides</i></b>	Bromodichloroacetonitrile			
	Chlorodibromoacetonitrile			
	Monochloroacetamide			
	Dichloroacetamide		> 97%	J&K
	Trichloroacetamide			
	Monobromoacetamide			

Table S2 The origin and purity of standard compounds of 40 cyclic halogenated DBPs.

DBP types	Chemical Name	Purity	Structure	Supplier
<b><i>Halophenols</i></b>	2-chlorophenol	98%		J&K
	4-chlorophenol	99%		Sigma-Aldrich
	2,4-dichlorophenol	99%		J&K
	2,6-dichlorophenol	99%		Sigma-Aldrich
	2,4,6-trichlorophenol	98%		TCI
	2-bromophenol	> 98%		TCI

3-bromophenol	98%		J&K
4-bromophenol	99%		Sigma-Aldrich
2,4-dibromophenol	> 98%		TCI
2,6-dibromophenol	98%		J&K
2,4,6-tribromophenol	> 98%		TCI
2-bromo-4-chlorophenol	≥ 99%		Acros Organics
2-bromo-6-chlorophenol	99%		Sigma-Aldrich
4-bromo-2-chlorophenol	99%		Acros Organics
2-bromo-4,6-dichlorophenol	99%		Sigma-Aldrich
4-bromo-2,6-dichlorophenol	98%		International Laboratory
2,4-dibromo-6-chlorophenol	> 97%		Key Organics
2,6-dibromo-4-chlorophenol	99%		Sigma-Aldrich

<b><i>Halobenzaldehydes</i></b>	3-chloro-4-hydroxybenzaldehyde	98%		J&K
	3,5-dichloro-4-hydroxybenzaldehyde	97%		Apollo
	3-bromo-4-hydroxybenzaldehyde	98%		J&K
	3,5-dibromo-4-hydroxybenzaldehyde	98%		Alfa Aesar
	3-bromo-5-chloro-4-hydroxybenzaldehyde	95%		International Laboratory
<b><i>Halobenzoic acids</i></b>	3-chloro-2-hydroxybenzoic acid	98%		J&K
	3-chloro-4-hydroxybenzoic acid	98%		Fluorochem Ltd
	3,5-dichloro-4-hydroxybenzoic acid	> 98%		TCI
	3-bromo-4-hydroxybenzoic acid	98%		Fluorochem Ltd
	3,5-dibromo-4-hydroxybenzoic acid	98%		Fluorochem Ltd
<b><i>Halosalicylaldehydes</i></b>	3-chlorosalicylaldehyde	> 98%		TCI
	5-chlorosalicylaldehyde	> 98%		TCI

	3,5-dichlorosalicylaldehyde	99%		Sigma-Aldrich
	3-bromosalicylaldehyde	> 98%		TCI
	5-bromosalicylaldehyde	> 98%		TCI
	3-bromo-5-chlorosalicylaldehyde	98%		Sigma-Aldrich
	3,5-dibromosalicylaldehyde	> 98%		TCI
<b><i>Halosalicylic acids</i></b>	3-chlorosalicylic acid	> 98%		TCI
	5-chlorosalicylic acid	98%		Sigma-Aldrich
	3,5-dichlorosalicylic acid	> 98%		TCI
	5-bromosalicylic acid	90%		Sigma-Aldrich
	3,5-dibromosalicylic acid	97%		J&K

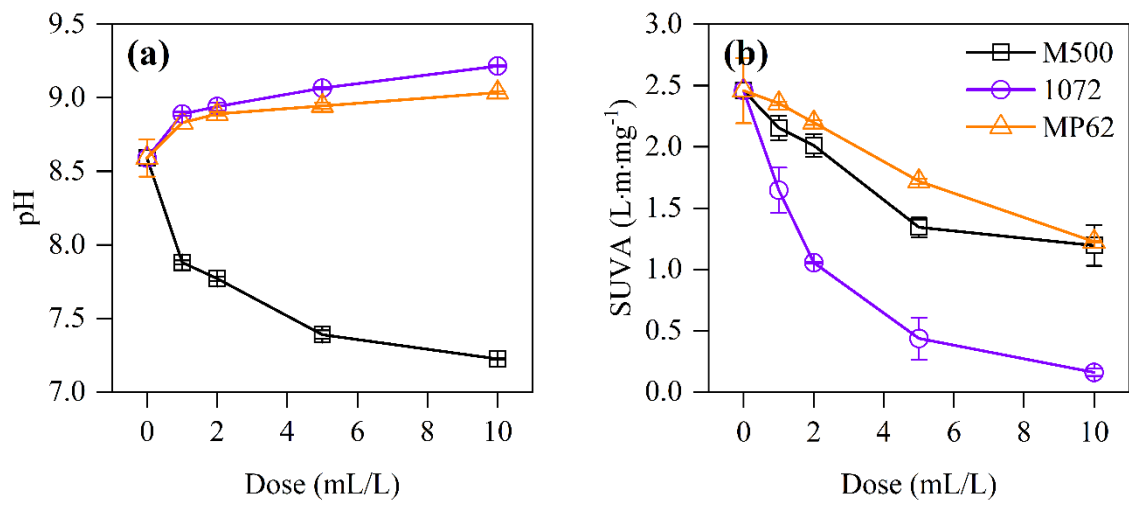
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## Text S1 Analytical methods of DBPs

Nine HAAs and three HAcAms were determined by GC–ECD (7890A, Agilent, USA) with a DB-1701 capillary column (30 m × 0.32 mm I.D., 0.25 µm film thickness, Agilent, USA). The injector and ECD temperatures were set at 210°C and 290°C, respectively. The carrier gas was high purity nitrogen (99.99%) at a flow rate of 1 mL/min. The injection volume of each sample was one µL in a splitless mode. For HAAs, the oven temperature was programmed as follows: an initial temperature of 40°C for 5 min, first ramping to 75°C at 5°C/min and holding for 5 min, second ramping to 210°C at 20°C/min and holding for 2 min. For HAcAms, the oven temperature was programmed as follows: an initial temperature of 40°C for 5 min, ramping to 210°C at 20°C/min and holding for 2 min. The recoveries of HAAs and HAcAms were 78%–115%.

Four THMs, one HALs, two HKs, nine HANs and seven HNMs were determined by GC–MS (TRACE GC ULTRA–ISQ, Thermo, USA) under the selected ion monitoring (SIM) mode. The capillary column of GC was DB-5MS UI (30 m × 0.25 mm I.D., 0.25 µm film thickness, Agilent, USA) and the ion source of MS was in the ionization mode of electron impact (EI). The injector, transfer liner, and ion source temperatures were set at 200°C, 280°C, and 280°C, respectively. The carrier gas was ultra-high purity helium (99.999%) at a flow rate of 0.8 mL/min. The injection volume of each sample was one µL in a split mode, and the split ratio was 12. The oven temperature was programmed as follows: an initial temperature of 35°C for 5 min, first ramping to 100°C at 10°C/min and holding for 0 min, second ramping to 280°C at 40°C/min and holding for 2 min. The recoveries of these DBPs were 73%–119%.

For cyclic DBPs, a UPLC/ESI-tqMS system (Waters Corporation, USA) was used to analyze the pretreated water samples. An HSS T3 column (2.1 × 100 mm, 1.8 µm, Waters, USA) was used for chromatographic separation. The sample injection volume for each UPLC run was 5 µL. The UPLC inlet method was set as follows: column temperature, 35°C; flow rate, 0.35 mL/min; eluent, initial 95/5 water/methanol followed by a linear change to 10/90 water-methanol in 8 min, a sharp change back to 95/5 water/methanol in 0.1 min, and an equilibrium until 11 min. The MS parameters were set according to previous reported values: ESI mode, negative; capillary voltage, 2.8 kV; cone voltage, 20 to 50 V (optimized by IntelliStart); collision energy, 10 to 40 eV (optimized by IntelliStart); desolvation temperature, 350°C; source temperature, 110°C; desolvation gas flow, 800 L/h; cone gas flow rate, 50 L/h; and collision gas flow rate, 0.25 mL/min.



**Fig. S1** Effect of M500MB, 1072, and MP62WS resin on (a) pH and (b) SUVA of the simulated source water.