Supporting Information

Detecting hydrogen peroxide reliably in water by ion chromatography: a method evaluation update and comparison in the presence of interfering components

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Total pages: 6, including cover page

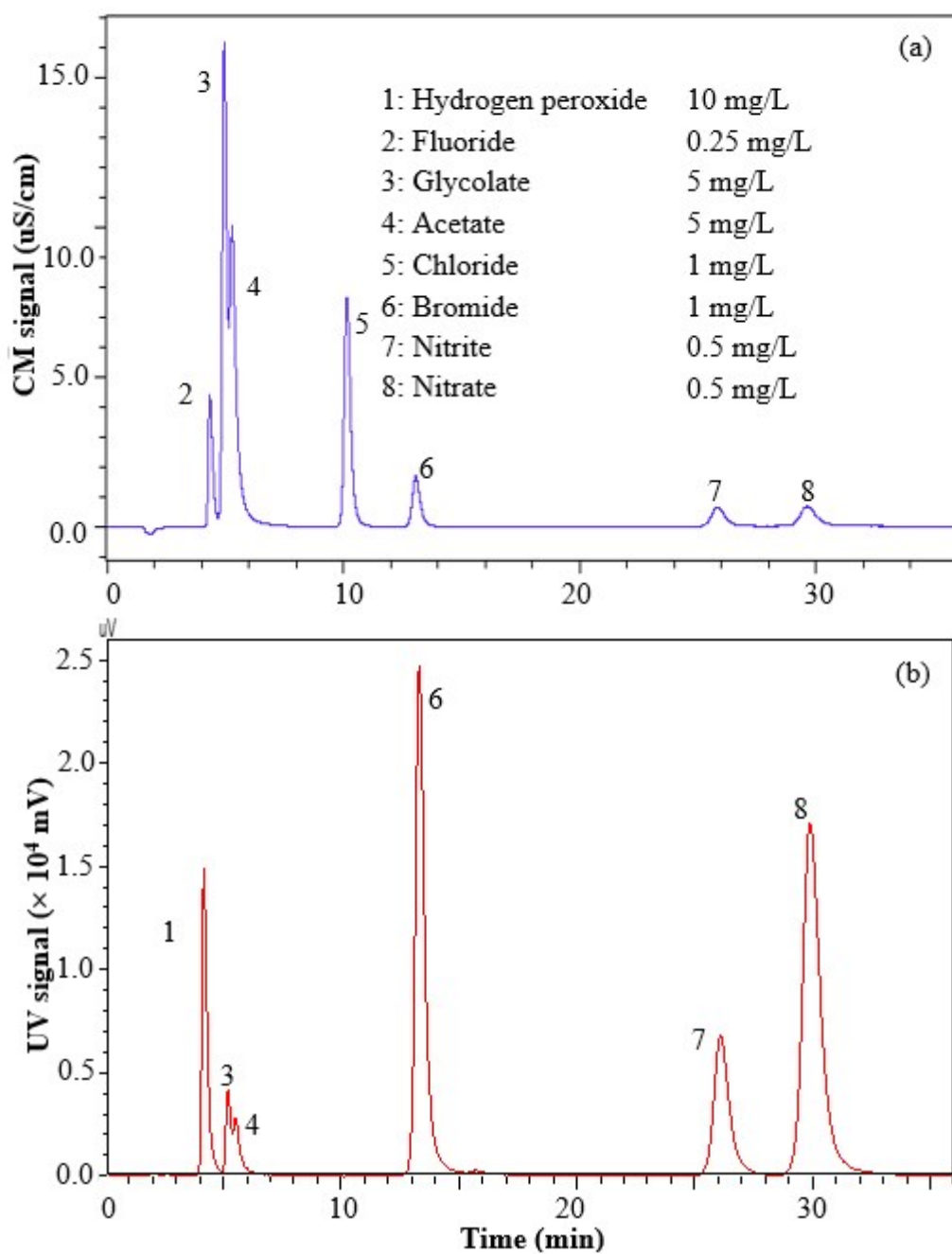Number of figures: 3

Number of tables: 2

Figure S1. A depiction of H₂O₂ and typical anions' chromatograms in water by IC with (a) conductivity meter (CM) and (b) UV detector.
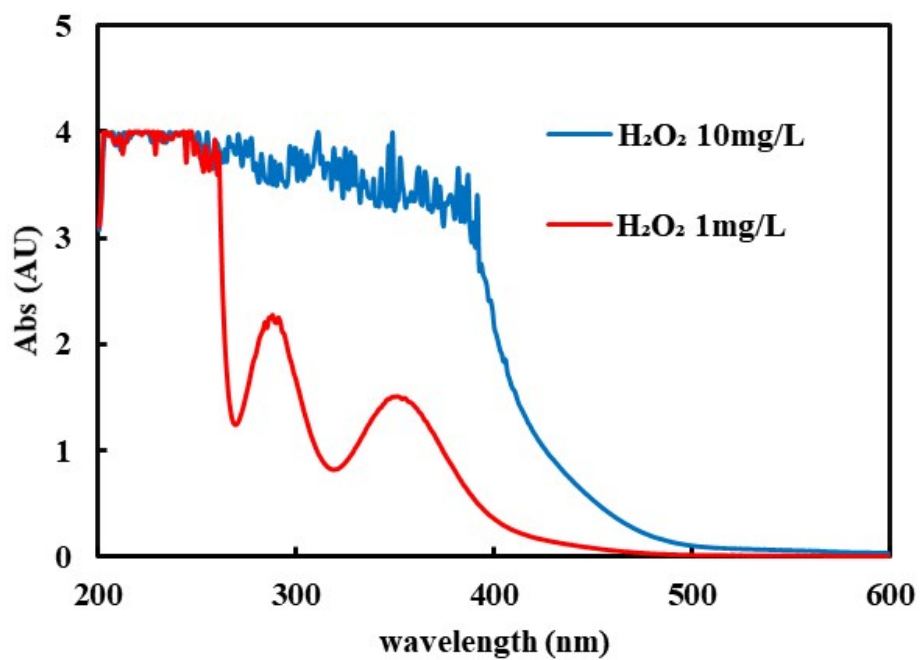
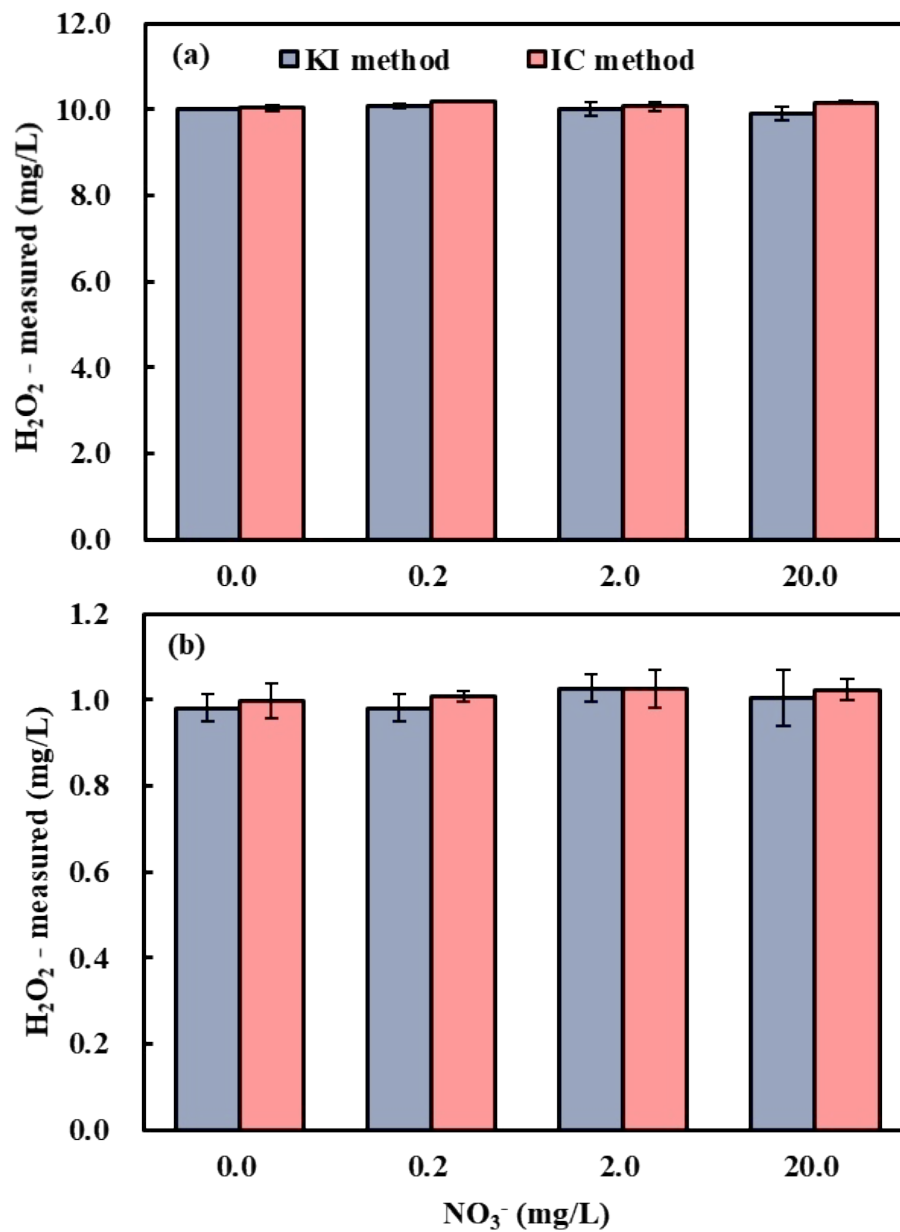**Figure S2. The spectra of waters spiked with H_2O_2 and KI as measured by the colorimetric method.**

Figure S3. A comparison of the IC and KI methods under the influences of nitrate for H$_2$O$_2$ measurement at (a) 2.0 mg/L and (b) 10.0 mg/L H$_2$O$_2$.

Table S1. H_2O_2 MDLs calculation for (a) the KI method and (b) the IC method.

(a) Test concentration = 30 µg/L

Sample #	C (µg/L)			
		n	10	
1	33.60	Average	34.23	
2	29.40	Variance	33.61	
3	34.65	StDev	5.80	
4	36.75			
5	34.65	t (n-1, 0.01)	2.82	
6	27.30	t value for 99% at n (from Table)		
7	28.35			
8	30.45	MDL(t *StDev)	16.35	
9	43.04			
10	44.09	C-MDL=	13.65	
		MDL*10-C=	133.53	
		S/N=	5.90	
		MDL (µg/L)=	16.35	
		LOQ (µg/L)=	57.97	
		X² (n-1, 0.975)	2.70	
		X² (n-1, 0.025)	19.02	
			X²/df	(X²/df) (MDL)
		LCL	0.30	4.91
		UCL	2.11	34.6

(b) Test concentration= 5 µg/L

Sample #	C (µg/L)			
		n	10	
1	2.79	Average	3.39	
2	2.32	Variance	0.57	
3	4.40	StDev	0.76	
4	3.26			
5	2.70	t (n-1, 0.01)	2.82	
6	3.36	t value for 99% at n (from Table)		
7	4.49			
8	4.21	MDL(t *StDev)	2.14	
9	2.88			
10	3.45	C-MDL=	2.86	
		MDL*10-C=	16.38	
		S/N=	4.47	
		MDL (µg/L)=	2.14	
		LOQ (µg/L)=	7.58	
		X^2 (n-1, 0.975)	2.70	
		X^2 (n-1, 0.025)	19.02	
			X²/df	(X²/df) (MDL)
		LCL	0.3	0.6
		UCL	2.1	4.5

Table S2. Common characteristics of the tap water used for the photolysis tests.

Parameters	Unit	Value
NPOC	mg-C/L	1.44
TN	mg-N/L	1.43
Free chlorine	mg-Cl$_2$/L	0.16
UV$_{254}$	1/cm	0.03
NO$_3^-$	mg/L	6.02
NO$_2^-$	mg/L	0.00
pH	/	6.80

NPOC: non-purgeable organic carbon; TN: total nitrogen.