

Supplementary

A Sensitive Near-Infrared Fluorescent Probe for Detecting Heavy Metal Ag⁺ in Water Samples

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Table S1. The comparison of this probe with some other chemodosimeters for Ag⁺.

Probe	λ_{em} (nm)	Detection Limit (μ M)	Interferents
Ref 6	525	5	no
Ref 9	535	7.2	no
Ref 12	470	0.34	Hg ⁺
Ref 19	525	0.65	no
Ref 18	525	0.09	no
Ref 20	485	0.2	no
Ref 21	490	0.76	no
QCy	760	0.03	no

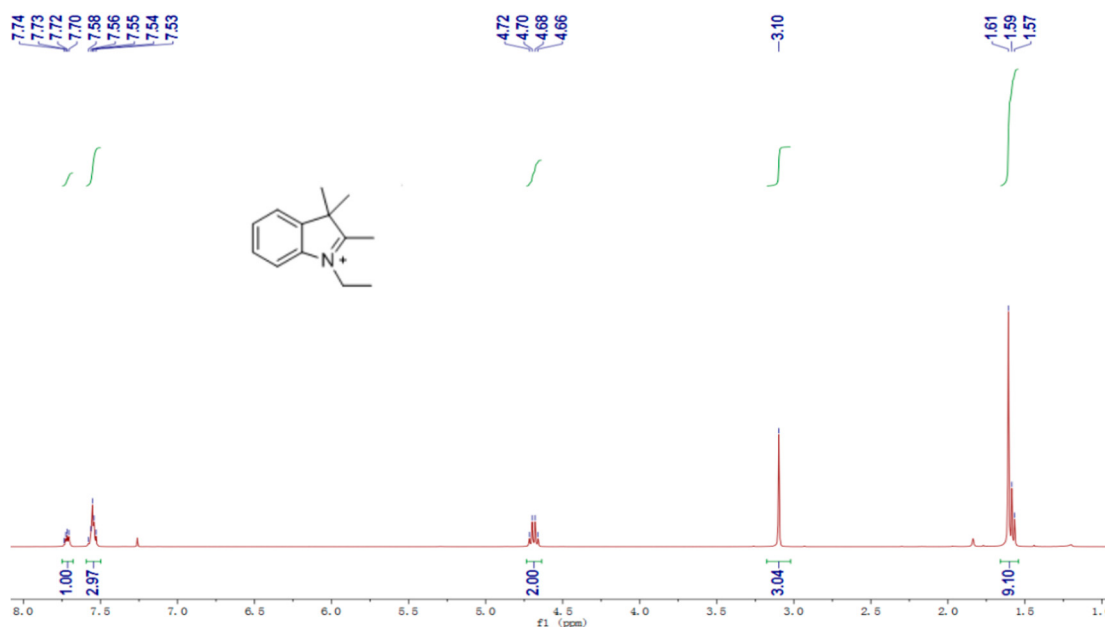


Figure S1. ¹H NMR spectrum of Compound 1 in d-chloroform.

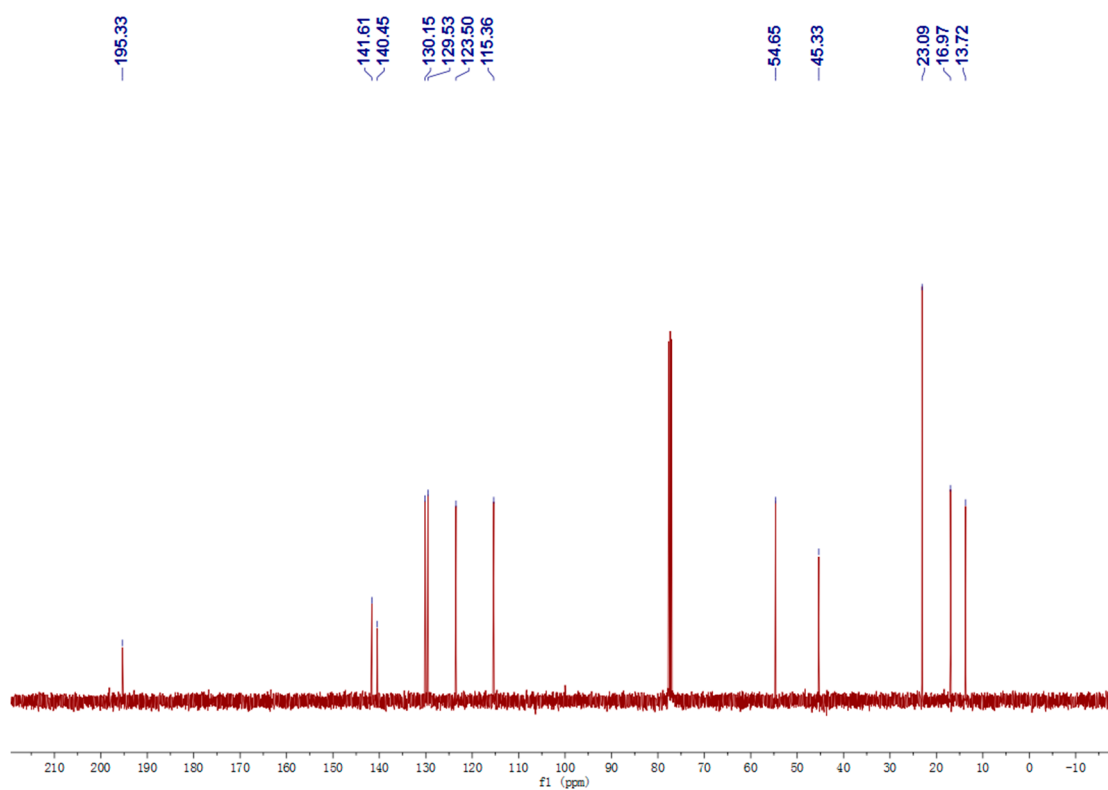


Figure S2. ^{13}C NMR spectrum of Compound 1 in d-chloroform.

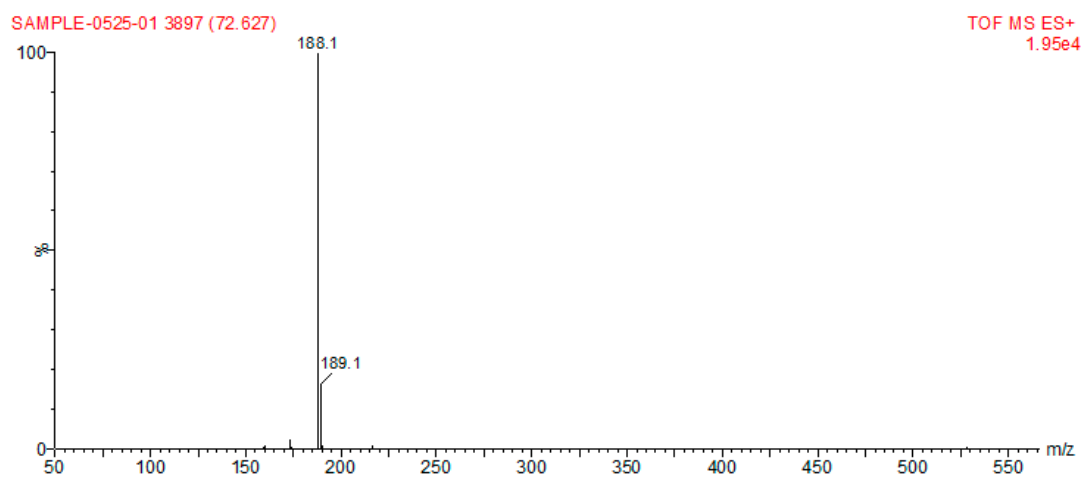
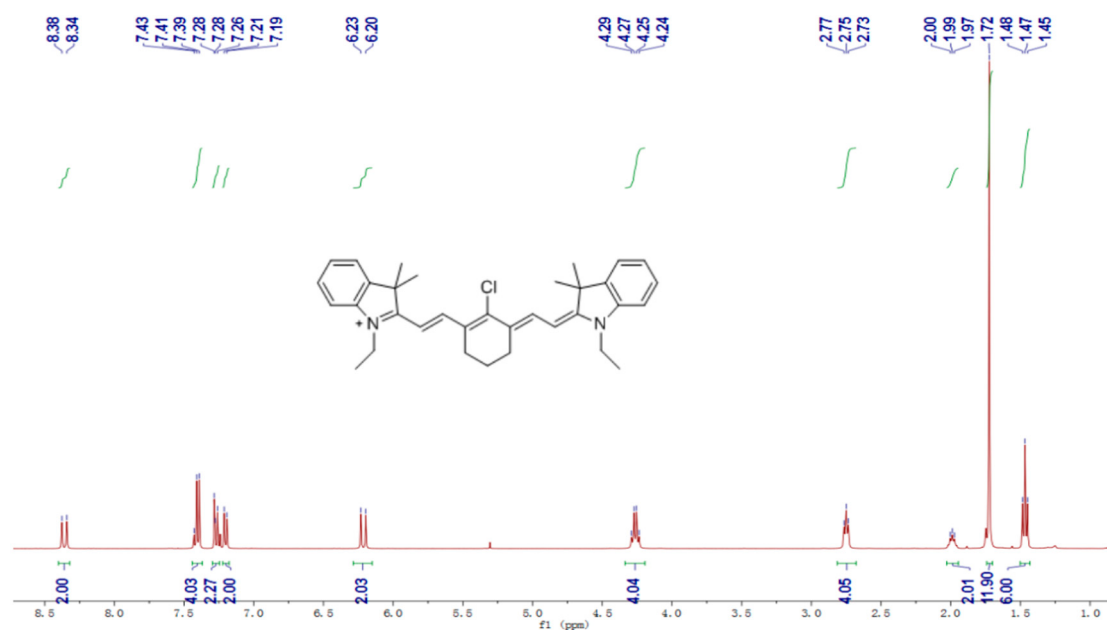
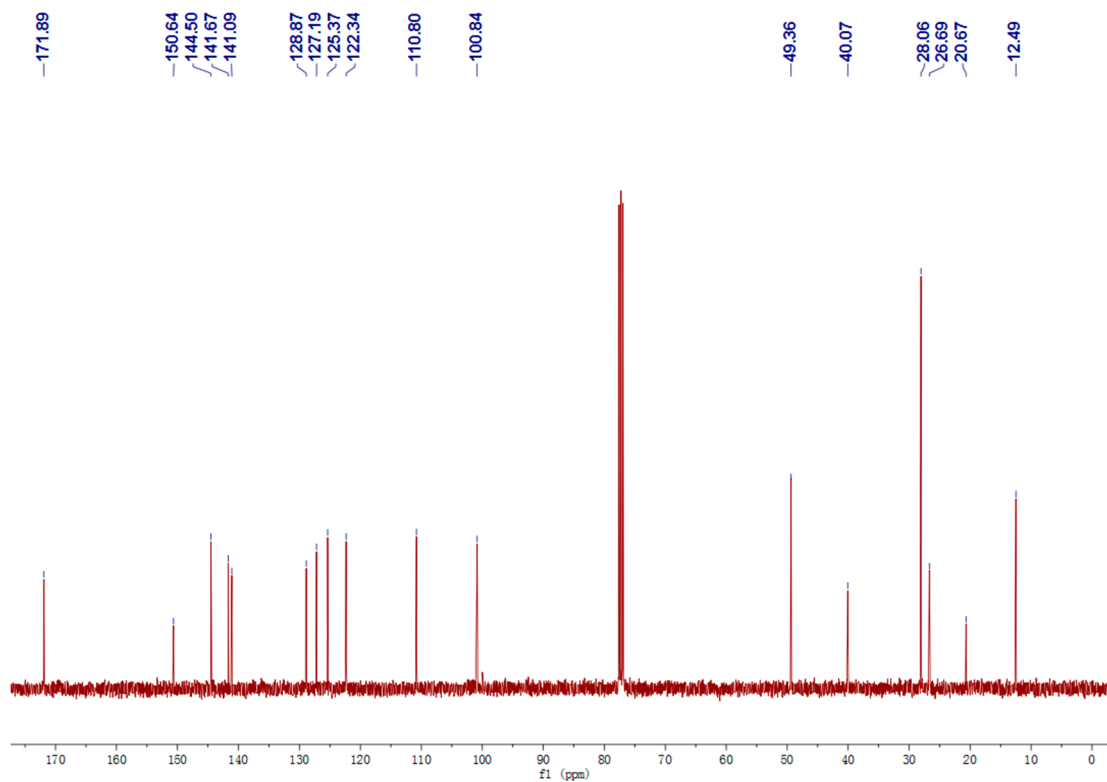


Figure S3. Mass spectrum of Compound 1.

Figure S4. ¹H NMR spectrum of Cy7-Cl in d-chloroform.Figure S5. ¹³C NMR spectrum of Cy7-Cl in d-chloroform.

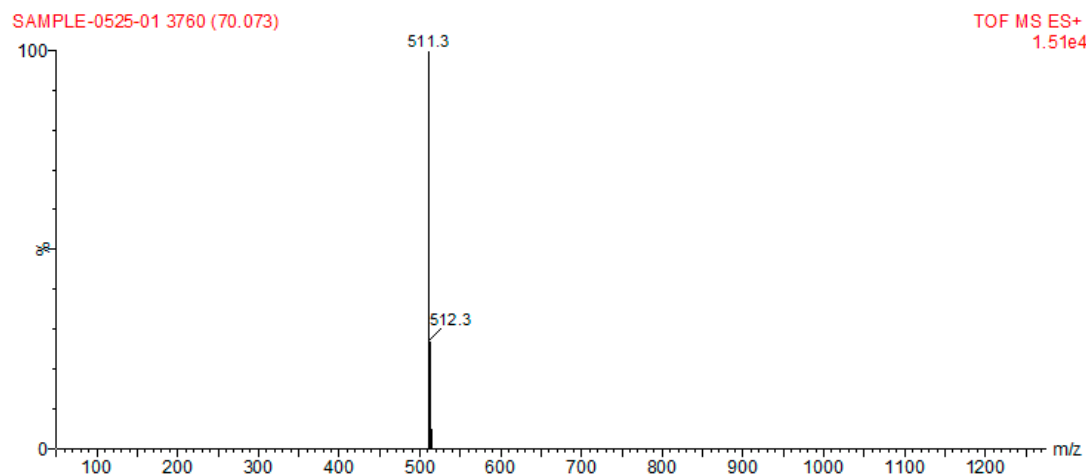


Figure S6. Mass spectrum of Cy7-Cl.

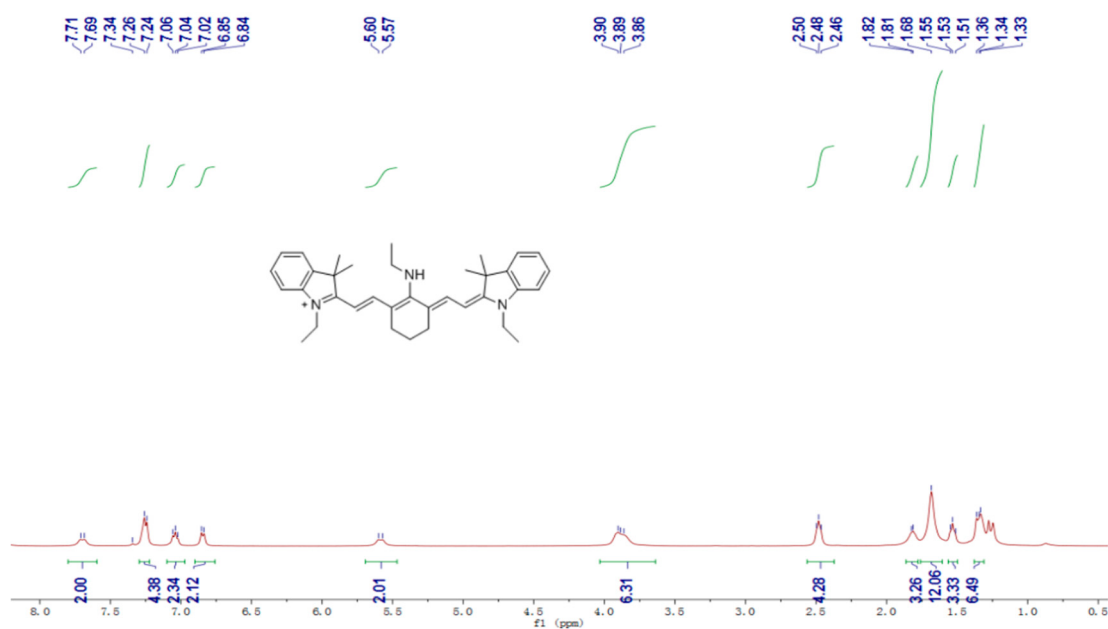
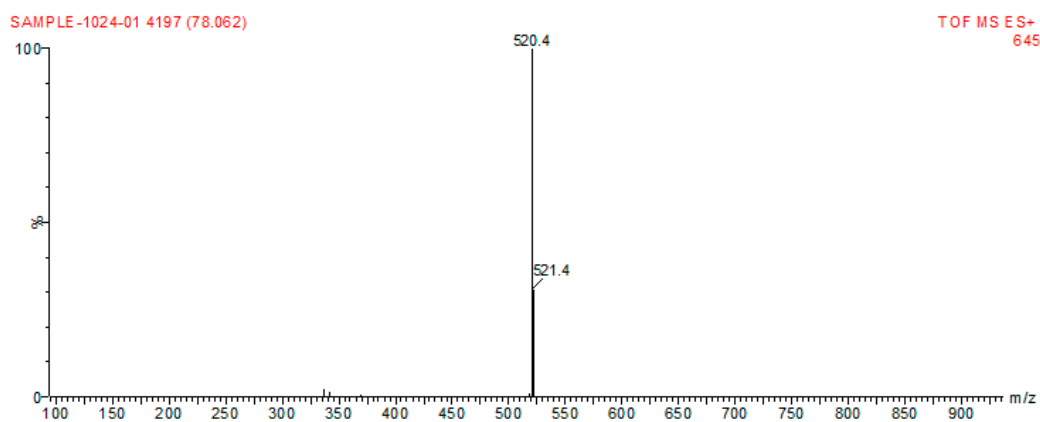
Figure S7. ^1H NMR spectrum of QCy in d-chloroform.

Figure S8. Mass spectrum of QCy.

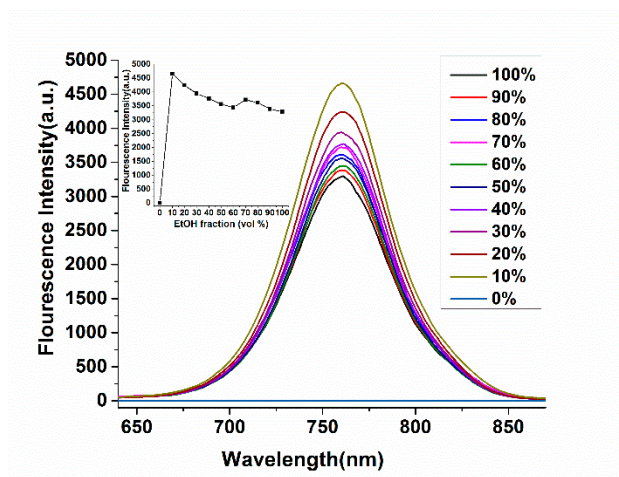


Figure S9. The influence of different proportions between EtOH and PBS. The test conditions: different proportions of EtOH and PBS (from 10:0 to 0:10).

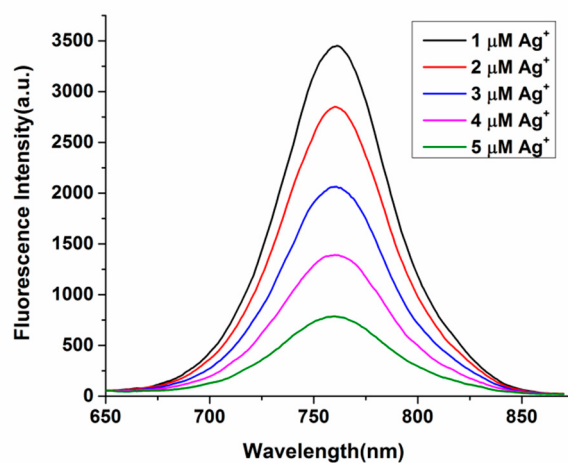


Figure S10. Fluorescence emissions of QCy with the addition of Ag^+ in simulated wastewater. $[\text{QCy}] = 2.5 \mu\text{M}$, $[\text{Ag}^+] = 0.0\text{--}5.0 \mu\text{M}$.

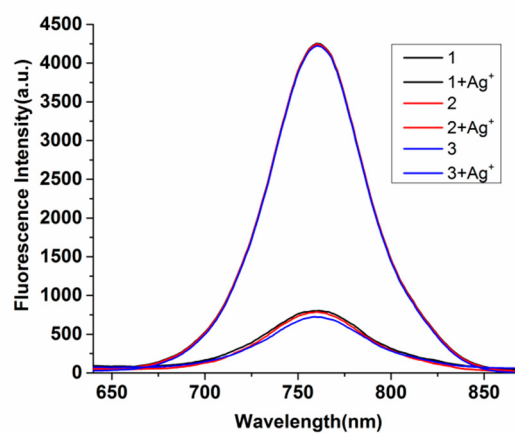


Figure S11. Fluorescence emissions of QCy with the addition of Ag^+ in Tap water of laboratory with three times. $[\text{QCy}] = 2.5 \mu\text{M}$, $[\text{Ag}^+] = 5.0 \mu\text{M}$.

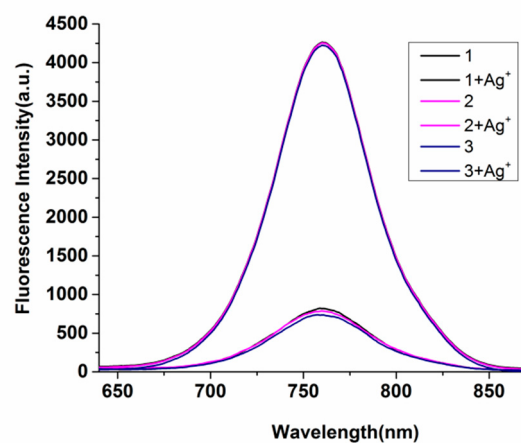


Figure S12. Fluorescence emissions of QCy with the addition of Ag^+ in Xuanwu Lake with three times. $[\text{QCy}] = 2.5 \mu\text{M}$, $[\text{Ag}^+] = 5.0 \mu\text{M}$.

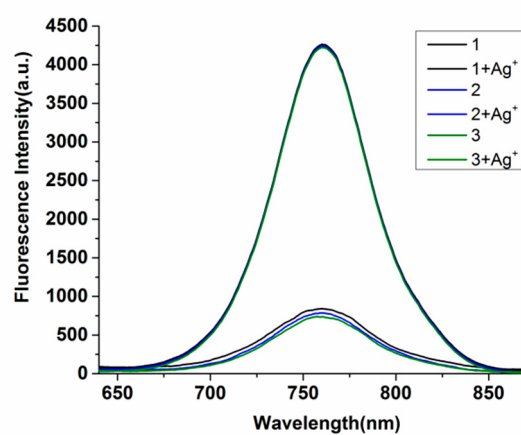
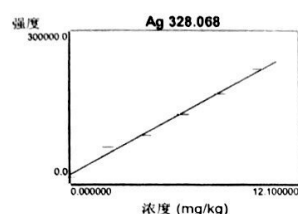


Figure S13. Fluorescence emissions of QCy with the addition of Ag^+ in Qinhuai River with three times. $[\text{QCy}] = 2.5 \mu\text{M}$, $[\text{Ag}^+] = 5.0 \mu\text{M}$.

20190104-Ag.wvq. 所有数据报告.

Ag 328.068 校正 (mg/kg)		2019/1/4, 13:56:41		相关系数: 0.995579		
标签	标记	Int.(c/s)	标样浓度.	计算浓度.	错误	%误差
标准 1		492.186	0.000000	-0.251383	-	-
标准 2		61188.7	2.00000	2.62184	0.621842	31.1
标准 3		85448.7	4.00000	3.77025	-0.229747	-5.7
标准 4		128911	6.00000	5.82765	-0.172355	-2.9
标准 5		170650	8.00000	7.80350	-0.196501	-2.5
标准 6		221871	10.0000	10.2281	0.228144	2.3

曲线类型: 线性

等式: $y = 21124.9x + 5802.6$ 

1 (样品) 2019/1/4, 13:59:20 试管 7
重量: 1 体积: 1 稀释: 1

标签 各次浓度
Ag 328.068 -0.228976u

标签	溶液浓度.	单位	SD	%RSD	Int.(c/s) 计算浓度.	DF
Ag 328.068	-0.228976uv	mg/kg	0.000000	0.0	965.544 -0.228976 mg/kg	1.00000

2 (样品) 2019/1/4, 14:00:05 试管 8
重量: 1 体积: 1 稀释: 1

标签 各次浓度
Ag 328.068 -0.238712u

标签	溶液浓度.	单位	SD	%RSD	Int.(c/s) 计算浓度.	DF
Ag 328.068	-0.238712uv	mg/kg	0.000000	0.0	759.863 -0.238712 mg/kg	1.00000

3 (样品) 2019/1/4, 14:00:50 试管 9
重量: 1 体积: 1 稀释: 1

标签 各次浓度
Ag 328.068 -0.239394u

标签	溶液浓度.	单位	SD	%RSD	Int.(c/s) 计算浓度.	DF
Ag 328.068	-0.239394uv	mg/kg	0.000000	0.0	745.445 -0.239394 mg/kg	1.00000

Figure S14. The report of Silver ion content in three water samples by atomic absorption spectrometry.