

Electronic Supplementary Information

Speciation of Selenium in Selenium-enriched Foods by High-performance Liquid Chromatography–Inductively Coupled Plasma–Tandem Mass Spectrometry

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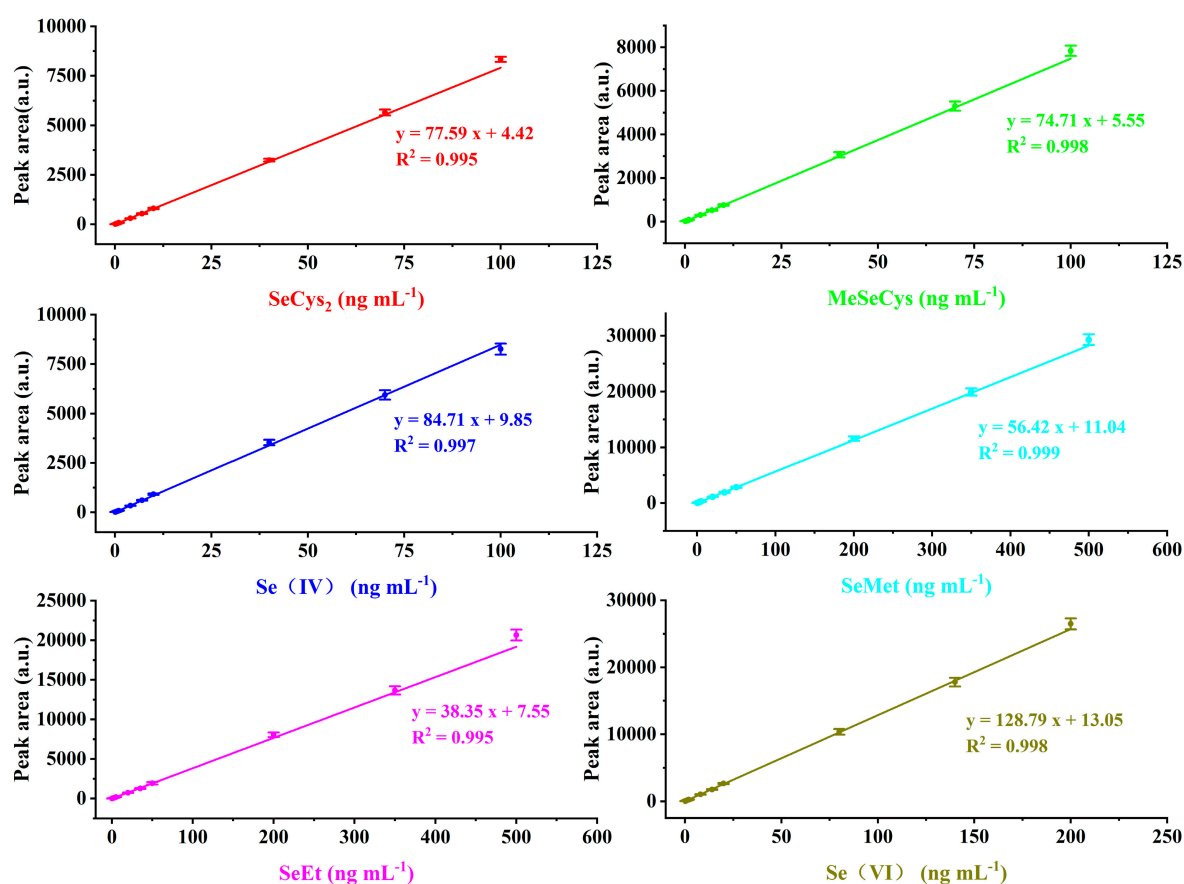


Figure S1 Fitted standard curve of six selenium species.

Table S1. Recovery test results of standard addition to selenium-enriched drinking water (n=3)

Component	Detect (ng mL ⁻¹)	Added (ng mL ⁻¹)	Measured (ng mL ⁻¹)	Recovery (%)	RSD (%)
		4.00	4.13	103	3.02
SeCys ₂	-	10.0	9.82	98.2	2.67
		40.0	38.5	96.3	2.15
		4.00	4.07	102	2.94
MeSeCys	-	10.0	10.3	103	2.51
		40.0	38.2	95.5	2.31
		4.00	3.92	98.0	2.62
Se(IV)	-	10.0	10.2	102	2.49
		40.0	39.3	98.3	2.16
		20.0	19.4	97.0	3.13
SeMet	-	50.0	48.2	96.4	2.80
		200	204	102	2.52
		20.0	19.3	96.5	2.94
SeEt	-	50.0	47.7	95.4	2.75
		200	196	98.2	2.17
		8.00	20.8	101	2.52
Se(VI)	12.8	20.0	32.6	99.3	2.34
		80.0	92.3	99.4	2.33

"-" indicates that the target was not detected.

Table S2. Test results of standard addition and recovery of selenium-enriched salts (n=3)

Component	Detect (µg kg ⁻¹)	Added (µg kg ⁻¹)	Measured (µg kg ⁻¹)	Recovery (%)	RSD (%)
		4.00	7.59	95.4	3.01
SeCys ₂	3.77	10.0	13.4	96.2	2.95
		40.0	42.8	97.5	2.87
MeSeCys	-	4.00	3.85	96.2	2.95

		10.0	9.86	98.6	2.84
		40.0	40.6	102	2.87
		4.00	6.95	102	2.38
Se(IV)	2.87	10.0	12.7	98.4	2.26
		40.0	43.3	101	2.18
		20.0	19.6	98.2	3.13
SeMet	-	50.0	48.1	96.1	2.52
		200	207	103	2.75
		20.0	19.5	97.4	3.25
SeEt	-	50.0	49.1	98.2	3.40
		200	207	103	3.52
		8.00	7.88	98.5	2.64
Se(VI)	-	20.0	20.7	104	2.52
		80.0	84.1	105	2.17

"-" indicates that the target was not detected.

Table S3. Test results of standard addition recovery of selenium-enriched tea extract (n=3)

Component	Detect ($\mu\text{g kg}^{-1}$)	Added ($\mu\text{g kg}^{-1}$)	Measured ($\mu\text{g kg}^{-1}$)	Recovery (%)	RSD (%)
		4.00	5.76	93.7	2.34
SeCys ₂	2.01	10.0	11.8	97.4	2.26
		40.0	40.5	96.1	3.14
		4.00	7.39	94.3	2.23
MeSeCys	3.62	10.0	13.3	96.5	2.15
		40.0	42.1	96.3	3.15
		4.00	6.11	102	2.26
Se(IV)	2.03	10.0	11.9	98.4	2.35
		40.0	41.2	97.8	2.20
		20.0	26.8	104	3.27
SeMet	5.98	50.0	53.7	95.2	2.96

		200	200	96.9	2.09
		20.0	18.6	93.2	3.14
SeEt	-	50.0	47.1	94.1	2.69
		200	202	101	2.79
		8.00	14.7	101	3.37
Se(VI)	6.57	20.0	27.4	104	2.67
		80.0	84.9	97.9	2.92

"-" indicates that the target was not detected.

Table S4. Analysis results of selenium speciation in selenium-enriched drinking water (ng mL⁻¹)

Sample	SeCys ₂	MeSeCys	Se(IV)	SeMet	SeEt	Se(VI)
Hanshui Selenium Valley	-	-	-	-	-	16.0
Watertime	-	-	-	-	-	0.26
Bama Platinum Springs	-	-	-	-	-	0.47
DaQin TaiJi Springs	-	-	-	-	-	1.00
LongWang Selenium Spring	-	-	-	-	-	12.87
RunTiancui	-	-	-	-	-	4.97
Global Village Life Spring	-	-	-	-	-	0.46
XiBeijian	-	-	-	-	-	0.20
Longquan, the capital of selenium	-	-	-	-	-	12.0
Xianfu Mountain Spring	-	-	-	-	-	1.04
Xingdou Mountain Spring	-	-	-	-	-	0.39

Bama Mountain Spring	-	-	-	-	-	0.33
Poly selenium rich spring	-	-	-	--	-	3.61

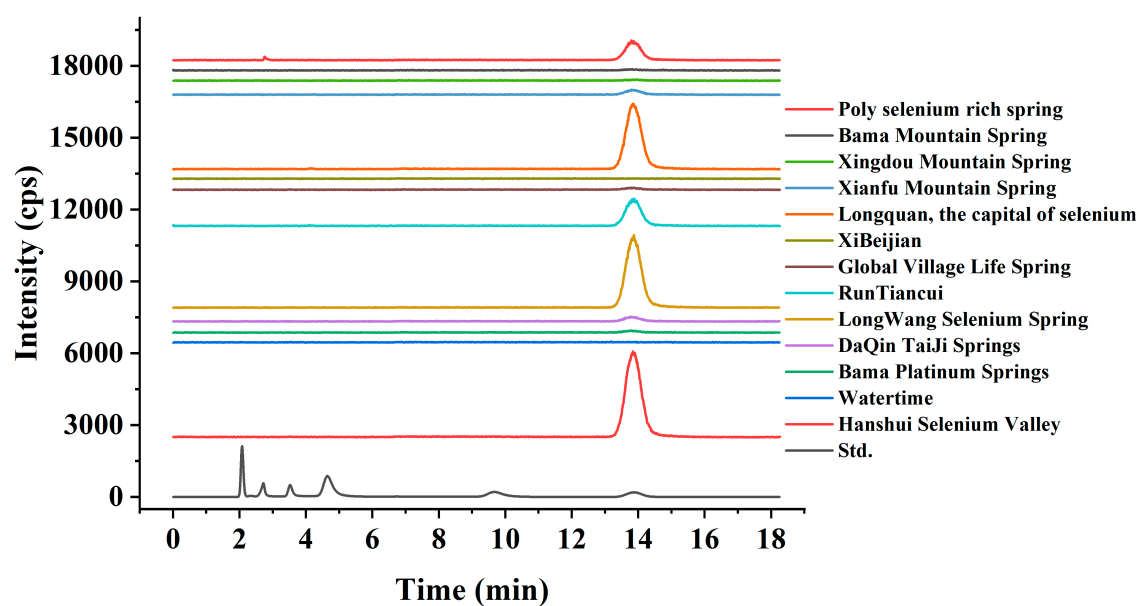


Figure S2. Chromatograms of 13 kinds of selenium-enriched drinking water. (Hamilton PRP-X100 column; 25 μ L injected; Mobile phase conditions: 2% methanol, 25 mM Sodium citrate, pH=4.0, flow rate of 1.0 ml min⁻¹).

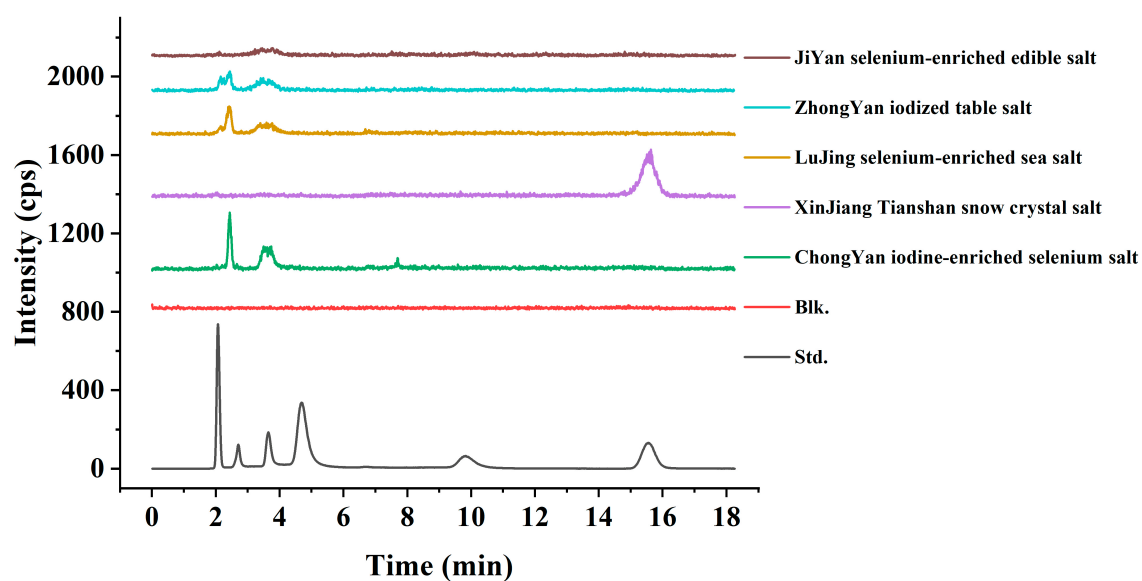


Figure S3. Chromatograms of five selenium-enriched salts. (Hamilton PRP-X100 column; 25 μL injected; Mobile phase conditions: 2% methanol, 25 mM Sodium citrate, pH=4.0, flow rate of 1.0 ml min^{-1}).

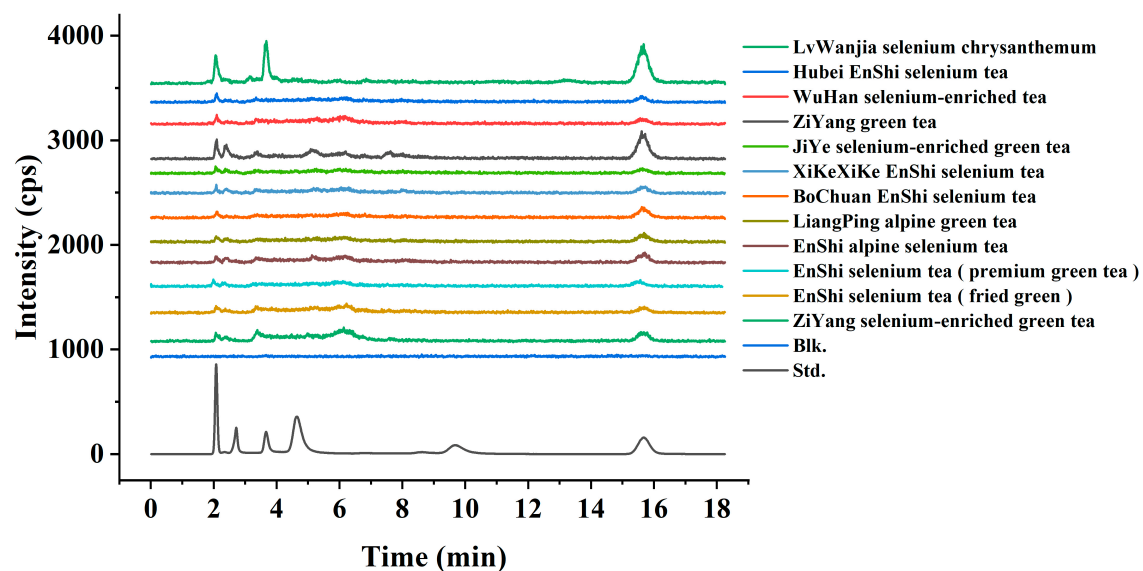


Figure S4. Chromatograms of 12 kinds of selenium-enriched tea leaves. (Hamilton PRP-X100 column; 25 μL injected; Mobile phase conditions: 2% methanol, 25 mM Sodium citrate, pH=4.0, flow rate of 1.0 ml min^{-1}).