

**Supplementary Table S1.** Results of calibration parameters from the determination of ascorbic acid, lycopene, total phenolics, and trace metals.

Parameter	Ascorbic acid (RP-HPLC/UV-Vis)	Lycopene (RP-HPLC/UV-Vis)	Total phenolic (Folin-Ciocalteu/ UV-Vis)	Cadmium (GFAAS)	Copper (Flame AAS)	Iron (Flame AAS)	Lead (GFAAS)	Manganese (Flame AAS)	Zinc (Flame AAS)
Detection limit	0.40 (mg·L <sup>-1</sup> )	0.001 (mg·L <sup>-1</sup> )	--*	0.1 (μg·L <sup>-1</sup> )**	0.017 (mg·L <sup>-1</sup> )**	0.1 (mg·L <sup>-1</sup> )**	2.0 (μg·L <sup>-1</sup> )**	0.033 (mg·L <sup>-1</sup> )**	0.017 (mg·L <sup>-1</sup> )**
Quantification limit	1.34 (mg·L <sup>-1</sup> )	0.29 (mg·L <sup>-1</sup> )	0.0124 (mg·mL <sup>-1</sup> )**	0.5 (μg·L <sup>-1</sup> )**	0.05 (mg·L <sup>-1</sup> )**	0.3 (mg·L <sup>-1</sup> )**	5.0 (μg·L <sup>-1</sup> )**	0.1 (mg·L <sup>-1</sup> )**	0.05 (mg·L <sup>-1</sup> )**
Linear range	0.5–150 (mg·L <sup>-1</sup> )	0.5–50 (mg·L <sup>-1</sup> )	0.0124–1 (mg·mL <sup>-1</sup> )	0.5–4.0 (μg·L <sup>-1</sup> )	0.05–1.5 (mg·L <sup>-1</sup> )	0.3–5.0 (mg·L <sup>-1</sup> )	5.0–40.0 (μg·L <sup>-1</sup> )	0.1–1.0 (mg·L <sup>-1</sup> )	0.05–0.7 (mg·L <sup>-1</sup> )
linear equation	y=263037x–280127	y=60509 x+41910	y=1.29x+0.012	y=0.093x+0.0046	y=0.126x+0.0010	y=0.0160x+0.0004	y=0.007x+0.0172	y=0.189x+0.0016	y=0.561x+0.0199
R <sup>2</sup>	0.9989	0.9981	0.9998	0.9987	0.9996	0.9995	0.9977	0.9998	0.9970

Note: GFAAS: graphite furnace atomic absorption spectrophotometry; flame AAS: flame atomic absorption spectroscopy; RP-HPLC: reversed-phase high-performance liquid chromatography; UV-Vis: ultraviolet-visible light, R<sup>2</sup>: coefficient of determination

\* The blank value was subtracted from the result.

\*\* Experimentally determined.

**Supplementary Table S2.** Recovery of analytes and relative standard deviation percentage of sample replicates.

Analyte	Recovery (%)	RSD (%)
Ascorbic acid <sup>1</sup>	89.01–111.01 <sup>a</sup>	0.02–8.92
Lycopene <sup>2</sup>	97.54–110.32 <sup>a</sup> / 92.38–109.53 <sup>b</sup>	0.63–9.84
Total phenolics <sup>3</sup>	94.85–107.58 <sup>b</sup>	0.29–5.70
Copper <sup>3</sup>	120.32 <sup>c</sup>	< 3.41
Iron <sup>3</sup>	93.86–94.71 <sup>d</sup>	0.37–5.66
Manganese <sup>3</sup>	107.50–108.50 <sup>d</sup>	0.37–5.90
Zinc <sup>3</sup>	91.89 <sup>c</sup>	0.25–2.89
Cadmium <sup>4</sup>	84.13–98.11 <sup>c</sup>	< 14.77
Lead <sup>3</sup>	75.08–91.60 <sup>b</sup>	< 2.56

<sup>a</sup>spiked samples; <sup>b</sup>fortified samples; <sup>c</sup>certified reference material;  
<sup>d</sup>standard control

RSD: relative standard deviation.

AOAC (55) limits: <sup>1</sup>recovery 85–110%, RSD: 8%; <sup>2</sup>recovery: 80–115%, RDS: 11%; <sup>3</sup>recovery: 75–120%, RSD: 16%; <sup>4</sup>recovery: 70–125%, RSD: 32%.