Supporting Information

Table S1. Operating parameters of the liquid chromatographic separation-gradient hydride generation-QFAAS detection system.

LC separation	Column: Develosil RPAQUEOUS-AR-5, Φ6×250 mm and Φ6×150 mm; Mobile phase: 5 mmol L^{-1} sodium 1-butanesulfonate, 4 mmol L^{-1} malonic acid, 4 mmol L^{-1} tetramethylammonium hydroxide, 0.1 % methanol, 10 mmol L^{-1} ammonium tartrate, pH 2. Flow rate: 1.0 mL min^{-1}; Column temperature: 25°C; Sample volume: 20 μL.
Hydride generation	1% $NaBH_4$ (m/v, in 0.5% NaOH); 6 mol L^{-1} HCl (with 2% L-cysteine (m/v)) for As(V) and MMA; 0.6 mol L^{-1} (with 2% L-cysteine (m/v)) for DMA. A same flow rate of 1.1 mL min^{-1} was used for both HCl and $NaBH_4$ solutions. An argon flow rate of 50 mL min^{-1} was employed as carrier gas.
AAS condition	Wavelength: 193.7 nm; Lamp current: 12 mA; Burner height: 10.0 mm; Slit width: 1.3 nm; Flame type: air-acetylene; Acetylene flow rate: 1.2 L min^{-1}; PMT voltage: 500 V; Air pressure: 160 kPa; Air flow rate: 15.0 L min^{-1}; Reading mode: Peak height.

Table S2. The GFAAS temperature program for the determination of arsenic

Step	Temperature (℃)	Ramp (s)	Hold (s)	Argon flow rate (mL min^{-1})
Preheating	80	5	15	200
Drying	120	5	15	200
Pyrolysis	800	10	20	200
Atomization	2500	0	5	0
Cleaning	2800	0	4	200