

## Supplementary data

Table S1. Operating conditions for ICP-MS instrument

Radiofrequency power (W)	1240
Sampling depth (mm)	14.8
Nebulizer flow rate (L/min)	0.88
Auxillary flow rate (L/min)	0.93
Einzel lens No 2 (V)	-72
Pole Bias lens (V)	-3.10
Extraction lens (V)	-514
Quadrupole focus (V)	14.3

Table S2. Operational parameters of ICP-AES

Plasma condition	
RF power	1.1Kw
Plasma gas flow rate (L/min)	12
Auxillary gas flow rate (L/min)	0
Sheath gas flow rate (L/min)	0.25
Sample uptake rate (ml/min)	1.7
Wavelength/nm	Mo 202.0

Table S3. The summary of the detection methods used for <sup>99</sup>Tc analysis.

	SPE+ICP-MS	LSC
Detection limitation	1-3 mBq/mL	500 mBq/mL
Time of sample processing	35 min	3 hrs
Time of analysis	2 min/sample	20 min/sample
Scintillation fluid	No	Yes
Working hours	Less then 1 hr	4 hrs