



Analysis of Cs in Soybean (Electrothermal Method)

ZA3000

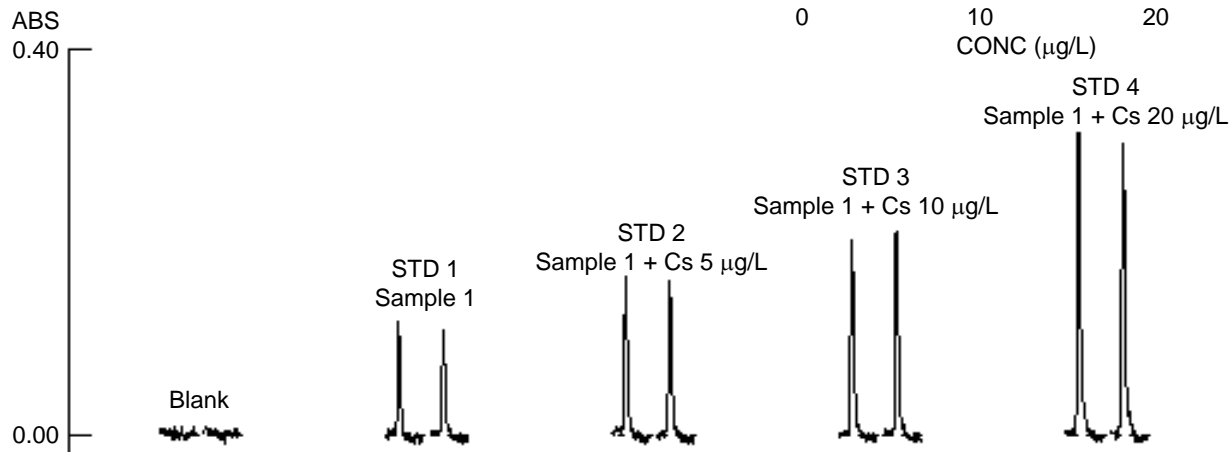
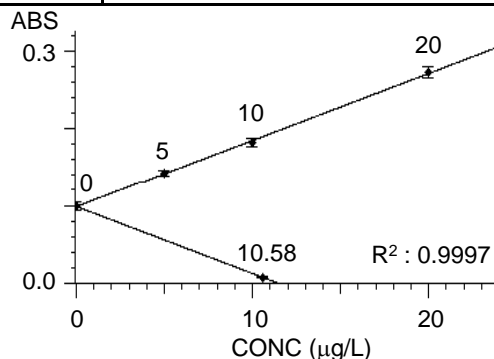
INTRODUCTION: Stable cesium isotope contained in Soya Bean Flour Certified Reference Material (INCT-SBF-4) was analyzed. This sample contains 129.1 ± 4.3 ng/g (certified value) of cesium. 852.1 nm, the measurement wavelength for cesium, is in the long wavelength region where BKG correction is not possible by the deuterium lamp correction method due to the low light intensity of a deuterium lamp. However, the polarized zeeman correction method allows the correction at any wavelengths. The analysis value agreed with the reference value, indicating that the procedure from the preparation to the measurement was performed accurately.

INSTRUMENT CONDITIONS	MEASUREMENT PARAMETERS	GA AUTOSAMPLER
Element : Cs	Meas. Mode : Std. Addition	Sample Volume : 20 μ L Addition : Inner Speed : 4
Instrument : ZA3000	Signal Mode : BKG Corrected	
Atomization : GA	Curve Order : Linear	MATRIX MODIFIER
Wavelength : 852.1 nm	Calculation : Peak Height	Matrix Modifier : 1000 mg/L K_2WO_4 Volume : 10 μ L Order : After
Lamp Current : 10.0 mA	Time Constant : 0.1 sec	
Slit Width : 1.3 nm	Temp. Control : ON	
Cuvette : Platform HR		

TEMPERATURE PROGRAM					NOTE
Stage	Initial/Final Temperature ($^{\circ}C$)	Heating/Keeping (sec)	Gas Flow Rate (mL/min)	Gas	Preparation: Weigh 2 g of the sample in a beaker. Add 5 mL of sulfuric acid and 15 mL of nitric acid and heat until just before the carbonization. Add 10 mL of nitric acid and 5 mL of hydrogen peroxide solution to evolve white fumes and then, make up the volume to 25 mL. A hollow cathode lamp of Hamamatsu Photonics K.K. was used for the measurement.
1 Drying	50 / 110	50 / 0	200	Normal	
	110 / 300	10 / 0	200	Normal	
2 Incineration	500 / 500	20 / 0	200	Normal	
3 Atomization	2100 / 2100	0 / 3	0	Normal	
4 Cleaning	2800 / 2800	0 / 4	200	Normal	

	CONC (μ g/L)	Mean ABS	SD	RSD	REF
Blank	0.00	0.0077	0.0008	10.39 %	0.0137
STD 1	0.00	0.0994	0.0053	5.33 %	0.1156
STD 2	5.00	0.1428	0.0041	2.87 %	0.1397
STD 3	10.00	0.1821	0.0055	3.02 %	0.1601
STD 4	20.00	0.2720	0.0070	2.57 %	0.2224
1	10.58	0.0994	-	-	-

$$10.58 (\mu\text{g/L}) \times 25 (\text{mL}) / 2 (\text{g}) = 132.25 (\text{ng/g})$$



KEY WORDS

Bio/Medical Science/Food/Pharmaceutical, Food, Food Chemistry, Food Component, Soybean, Cesium, Cs, Flameless, Graphite Furnace, AA, ZA3000, GA, Platform HR

Atomic Absorption Photometer (AA)

Sheet No. AA120009-00