# Determination of Cesium Ions in Environmental Water Samples with a Magnetic Multi-walled Carbon Nanotubes Imprinted Potentiometric Sensor

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**Table S1. FAAS detection of Cs ion in eluate**

| [Cs] Calibration curve | 2021/1/16 14:45 |
|---|---|
| Curve equation | [C]=K2[A]^2+K1[A]+K0 |
| Equation coefficient | K2=-14.9894, K1=31.8711, K0=-0.0236 |
| Correlation | 0.99646 |

| NO. | Abs | concentration [ppm] |
|---|---|---|
| 1 | 0 | 0 |
| 2 | 0.147 | 4 |
| 3 | 0.219 | 6 |
| 4 | 0.265 | 8 |
| 5 | 0.392 | 10 |

| NO. | Sample | Abs | concentration [ppm] | Actual concentration [ppm] | SD | RSD[%] |
|---|---|---|---|---|---|---|
| 1 | STD - Cs1 | 0 | 0 | | 0.0007 | -45.5711 |
| 2 | STD - Cs2 | 0.147 | 4 | | 0.0006 | 0.3924 |
| 3 | STD - Cs3 | 0.219 | 6 | | 0.0008 | 0.3448 |
| 4 | STD - Cs4 | 0.265 | 8 | | 0.0046 | 1.7209 |
| 5 | STD - Cs5 | 0.392 | 10 | | 0.0049 | 1.2485 |
| 6 | UNK -Cs1 | 0.013 | 0.368 | 0.368 | 0.001 | 7.3975 |
| 7 | UNK -Cs2 | 0 | 0 | 0 | 0.0003 | -49.7102 |
| 8 | UNK -Cs3 | 0 | 0 | 0 | 0.0002 | -17.8557 |

**Table S2. The content of natural mineral impurities in the sample**

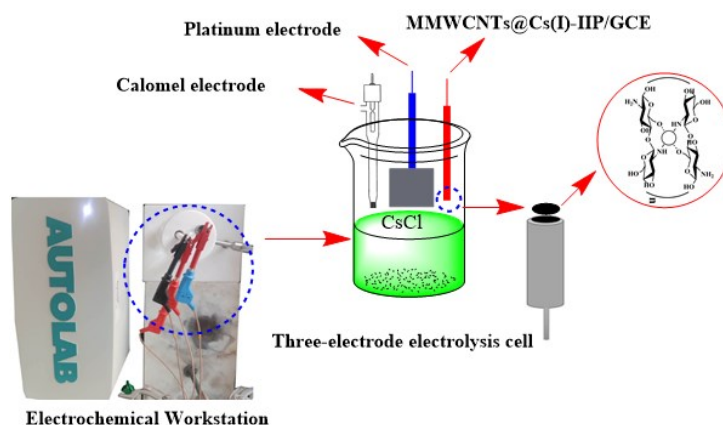| Metal ion (mg/L) sample | Fe(III) | Al(III) | Sr(III) | Mg(II) | Rb(I) | Ca(II) | Li(I) | Na(I) | K(I) | Cs(I) |
|---|---|---|---|---|---|---|---|---|---|---|
| Brine | 161.00 | 4.49 | 0.084 | 9410 | 0.26 | 132 | 1240 | 2080 | 785 | Not detected |
| Beichuan river water | 9.81 | 0.052 | 87.7 | 1710 | 0.35 | 827 | 1.1 | 3310 | 262 | Not detected |
| Industrial waster water | 6.34 | 1.17 | 24.4 | 2890 | 1.57 | 5500 | 149 | 11700 | 7150 | Not detected |



**Figure S1. The diagram of the electrochemical cell used for the potentiometer device**