

Electrochemical Determination of Lead & Copper Ions using Thiolated Calix[4]arene-Modified Screen-Printed Carbon Electrode

Chong Jin Mei¹, Nor Azah Yusof² and Shahrul Ainliah Alang Ahmad^{1,2*}

¹Department of Chemistry, Faculty of Science, Universiti Putra Malaysia, 43400 UPM

Serdang, Malaysia

²Institute of Advanced Technology, Universiti Putra Malaysia, 43400 UPM Serdang,

Selangor Malaysia

*Corresponding email: ainliah@upm.edu.my

Table S1. element analysis of (a) bare screen-printed carbon electrode (SPCE) (b) AuNPs/SPCE and (c) TC4/AuNPs/SPCE.

a)

Element	Weight %	Atomic %
C	94.06	97.91
Cl	5.94	2.09

b)

Element	Weight %	Atomic %
C	85.93	99.01
Au	14.07	0.99

c)

Element	Weight %	Atomic %
C	82.51	96.25
O	2.99	2.62
S	0.27	0.12
Au	14.23	1.01

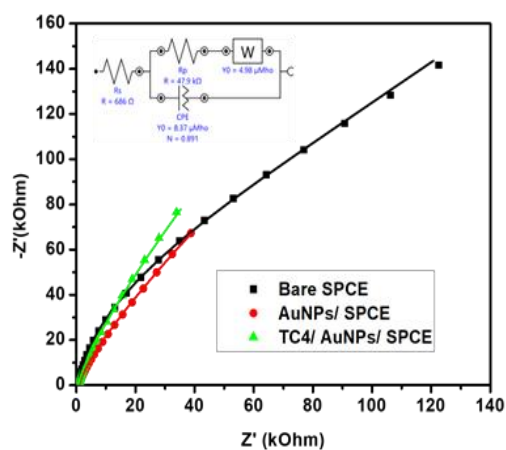


Figure S1. Graph of Nyquist plot of bare SPCE, AuNPs/SPCE, TC4/AuNPs/SPCE in 0.1 M KCl containing 1.0 mM $\text{K}_3[\text{Fe}(\text{CN})_6]$ from 100 kHz to 0.1 Hz, 10 per decade and 0.005 V amplitude.

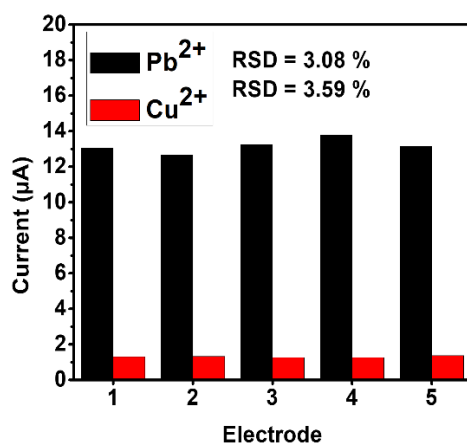


Figure S2. Reproducibility of TC4/AuNPs/SPCE for 1.0 ppm Pb^{2+} and Cu^{2+} detection.

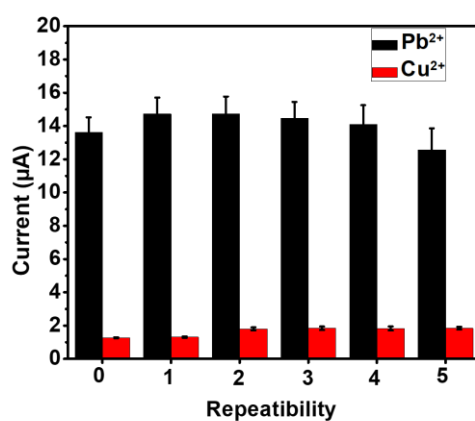


Figure S3. Stability of TC4/AuNPs/SPCE for 1.0 ppm Pb²⁺ and Cu²⁺ detection.

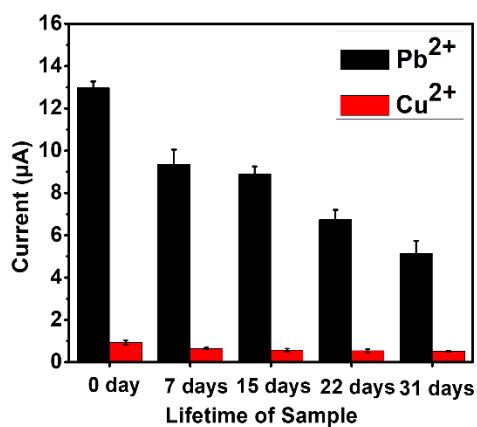


Figure S4. Lifetime measurement of TC4/AuNPs/SPCE in the detection of 1.0 ppm of Pb²⁺ and Cu²⁺ in 0.1 M, pH 8 KCl at deposition potential of -1.2 V (Pb²⁺) and -1.1 V (Cu²⁺), and a deposition time of 120 s.