

Electronic Supplementary Material (ESI) for RSC Advances

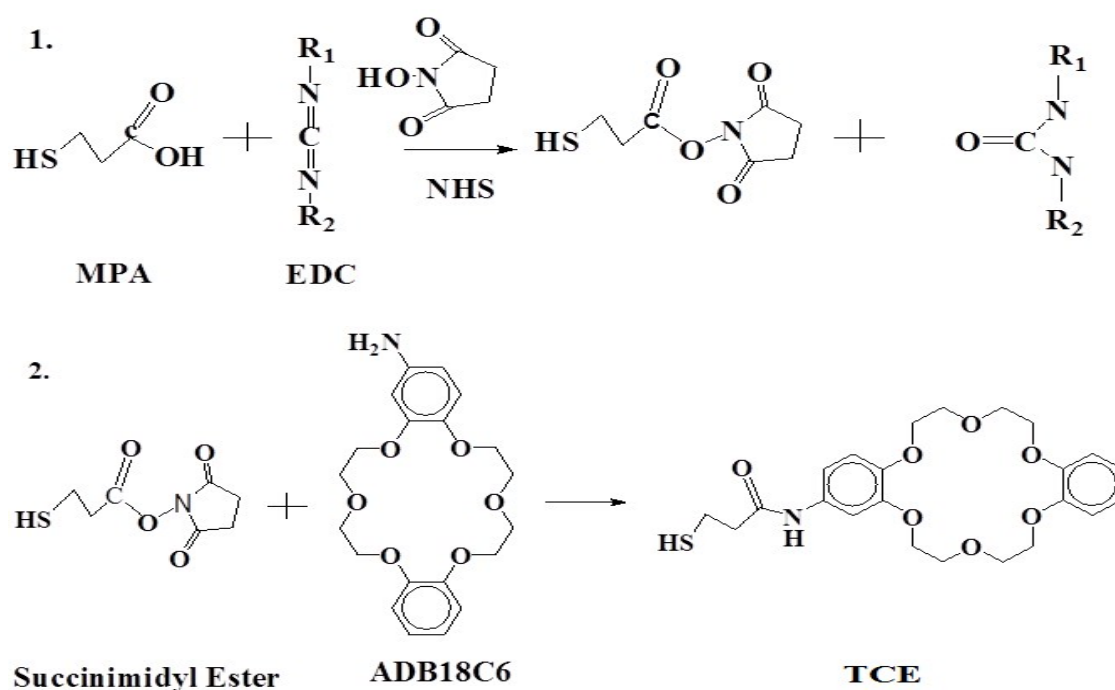
Rapid detection of mercury contamination in water by surface enhanced Raman spectroscopy

Daniel K. Sarfo ^a, Arumugam Sivanesan ^a, Emad L. Izake ^a, and
Godwin A. Ayoko^{a,*}

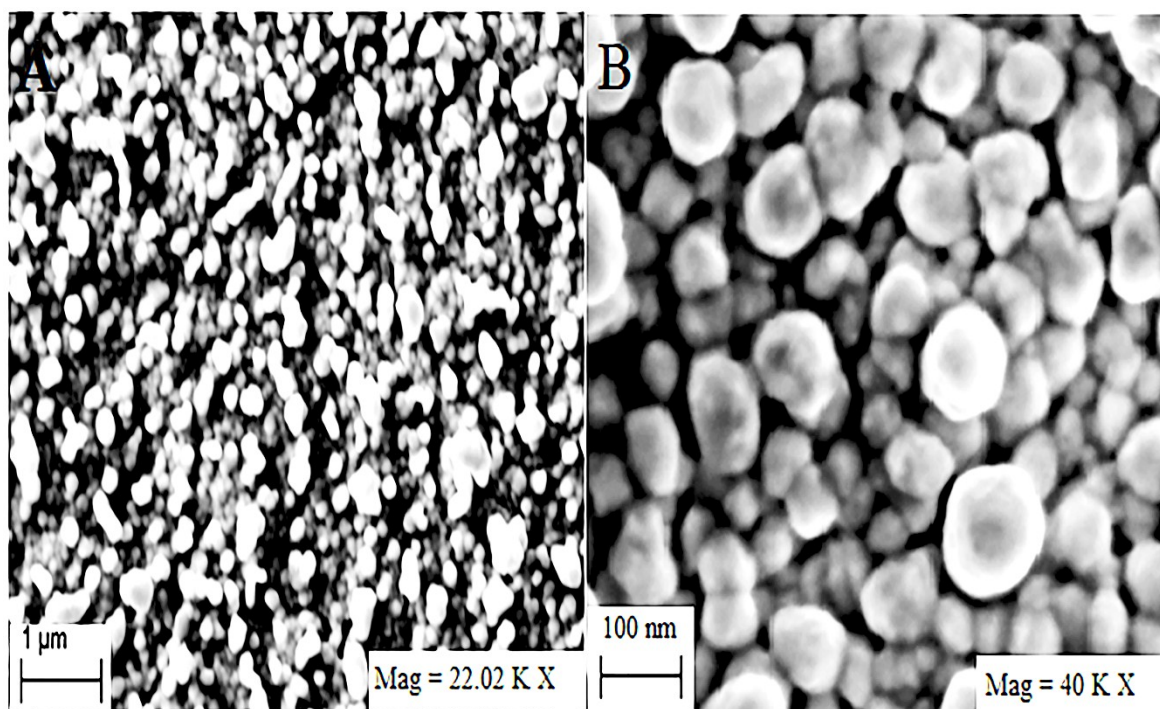
^a *Queensland University of Technology (QUT), School of Chemistry, Physics and Mechanical Engineering, Nanotechnology and Molecular Science, 2 George Street, QLD 4001, Australia.*

Corresponding Author

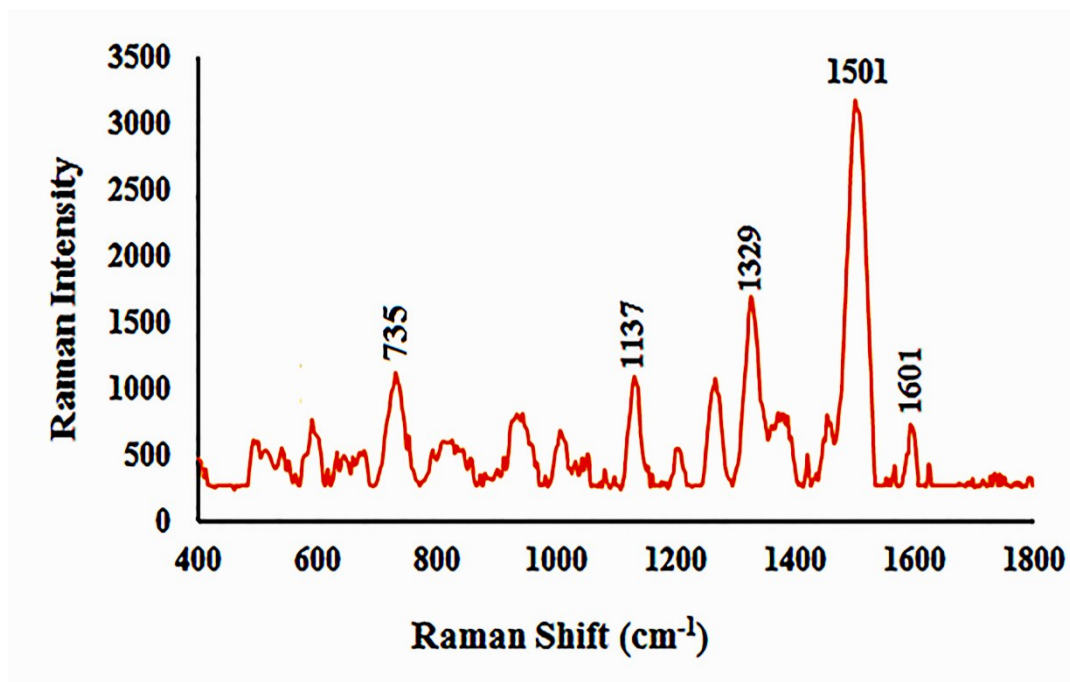
Prof Godwin A. Ayoko: Email: g.ayoko@qut.edu.au



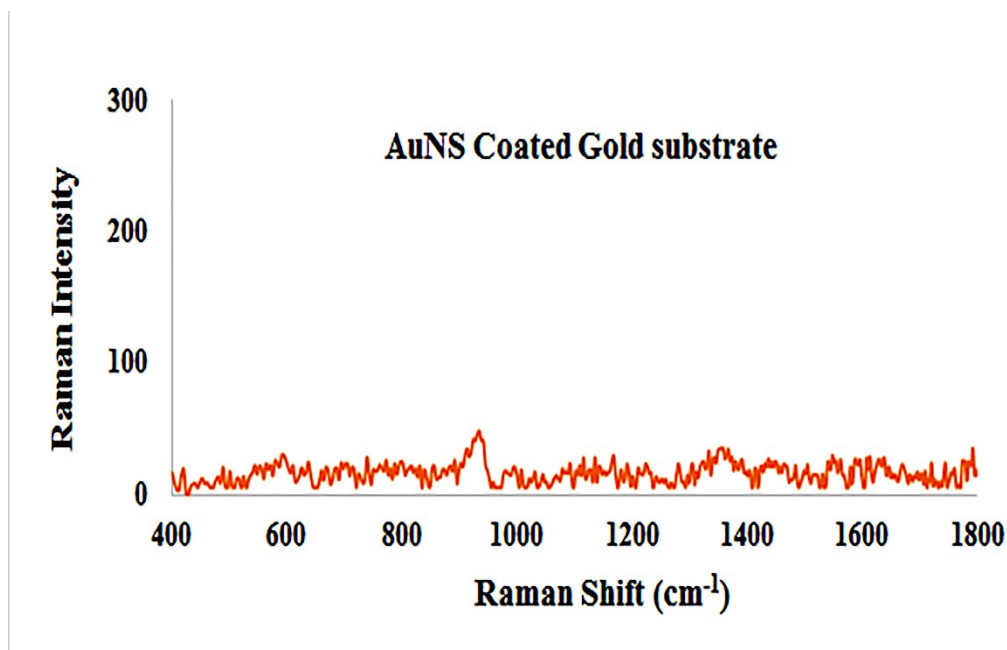
ESI 1, Attachment of MPA to the ADB18C6 molecule by the EDC/NHS coupling reaction
($R_1 = \text{CH}_2\text{CH}_3$, $R_2 = (\text{CH}_2)_3\text{N}^+\text{H}(\text{CH}_3)_2\text{Cl}^-$)



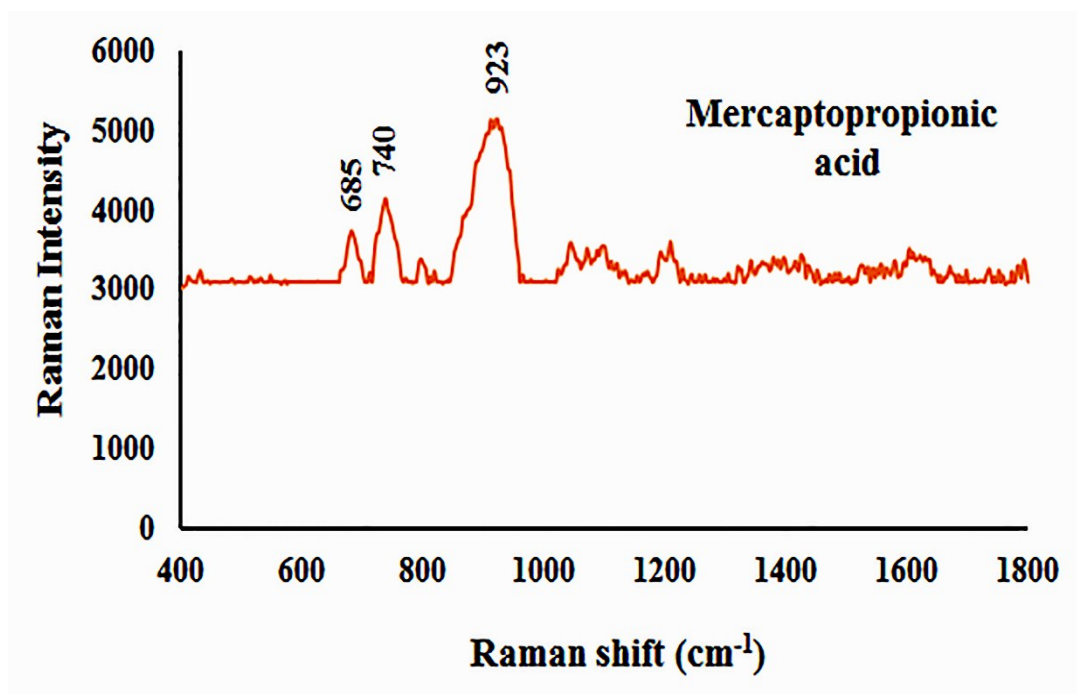
ESI 2: SEM images AuNS coated gold substrate



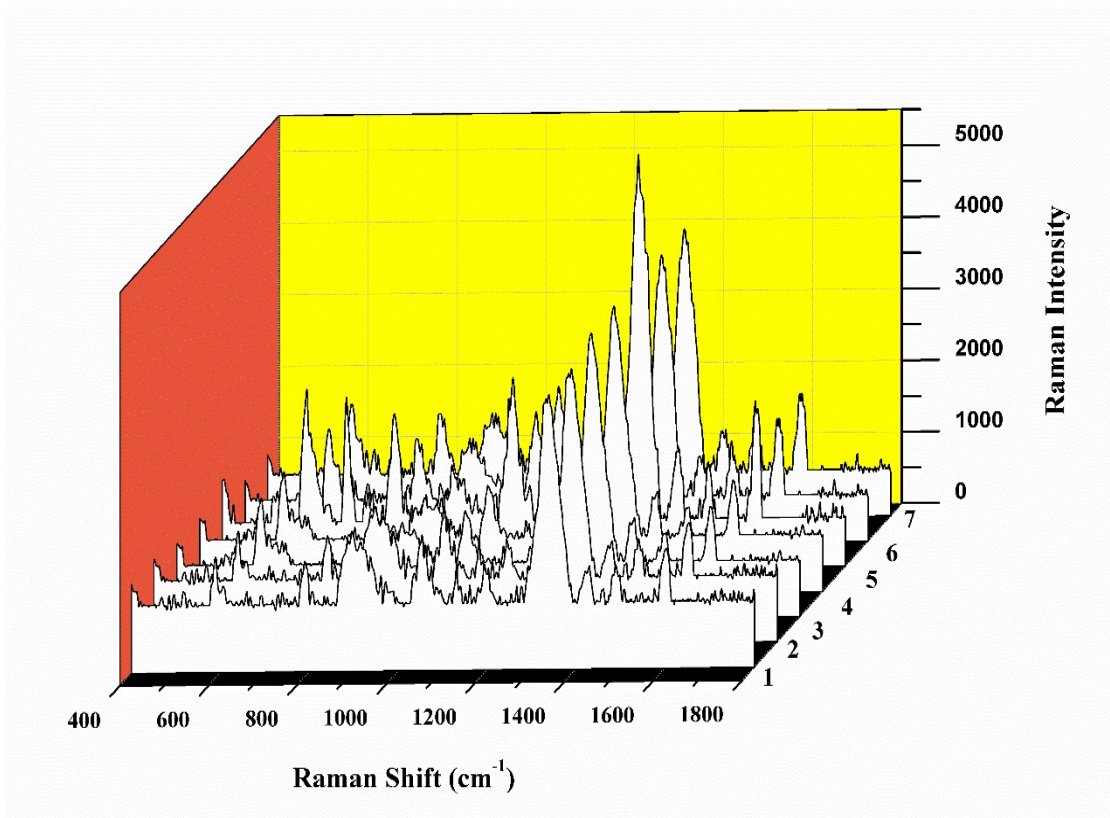
ESI 3: SERS spectra of 1 $\mu\text{MHg-ADB18C6}$ Complex



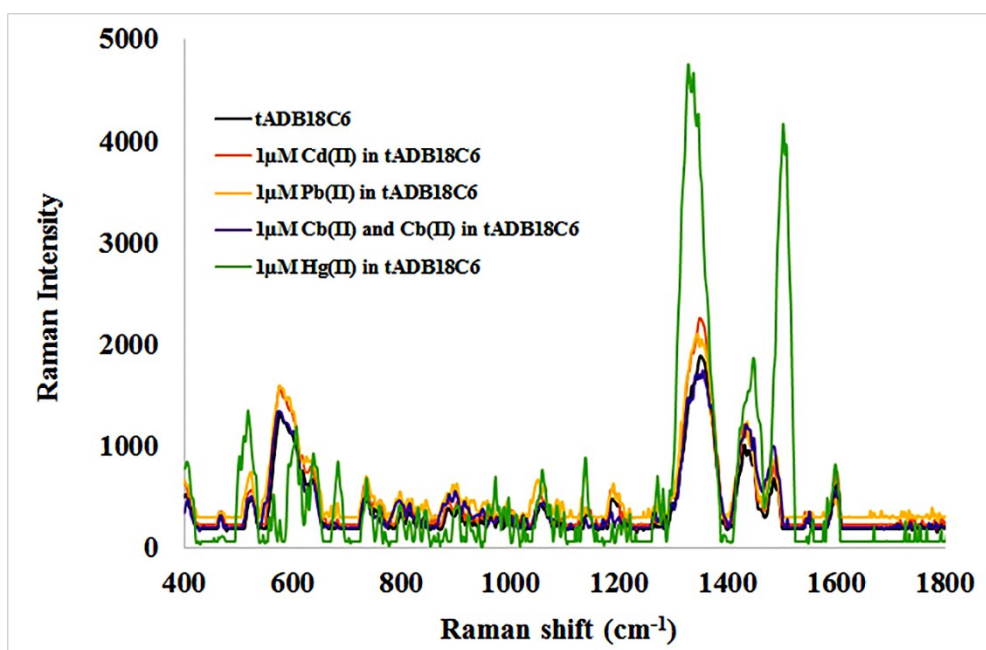
ESI 4: SERS spectra of unmodified AuNS coated gold substrate after 15 minutes oxygen plasma cleaning



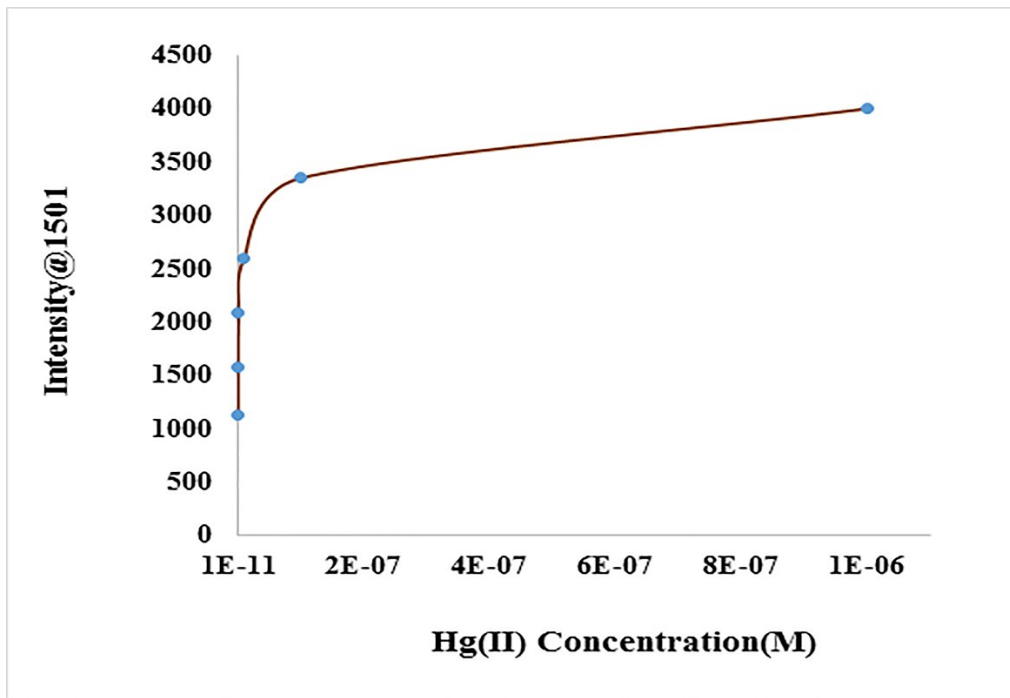
ESI 5: SERS spectra of 0.4mM Mercaptopropionic acid



ESI 6: Raman spectra of 0.1pM Hg(II) in thiolated 4-amino-dibenzo-18-crown-6 taken from 7 different substrates.



ESI 7: SERS spectra of TCE and Cd(II), Pb(II), Cd(II) and Pb(II) and Hg(II) in TCE respectively



ESI 8: A plot of Raman intensity@1501 verses Hg concentration (M)