Electronic Supplementary Material (ESI) for New Journal of Chemistry.

Tunable compositions of $Pd_{100-x}Cu_x$ catalyst towards electrooxidation of ethanol and ethylene glycol

Sreejith P. Babu and Perumal Elumalai*

Electrochemical Energy and Sensors Lab, Department of Green Energy Technology,
Madanjeet School of Green Energy Technologies, Pondicherry University,
Pondicherry- 605014 India

Calculation of Pd metal loading (m_{Pd}) for the $Pd_{100-x}Cu_x$ alloy compositions

Mass of alloy deposited, $m_a = Z_a .Q$

where, Q is the charge consumed during the electrodeposition process.

Z_a is the electrochemical equivalent of the $Pd_{100-x}Cu_x$ alloy composition given by the equation

$$Z_a = \frac{Z_{Pd} Z_{Cu}}{(Z_{Pd} f_{Cu} + Z_{Cu} f_{Pd})}$$

Z_{Pd}, Z_{Cu}, f_{Pd} and f_{Cu} are the respective metal electrochemical equivalents and mass fractions of Pd and Cu in the alloy compositions.

Mass of Pd metal loading, m_{Pd},is calculated from m_a from the equation:

$$m_{Pd} = \frac{ma}{(1 + \frac{Z_{Cu}}{Z_{Pd}})}$$

Figure S1

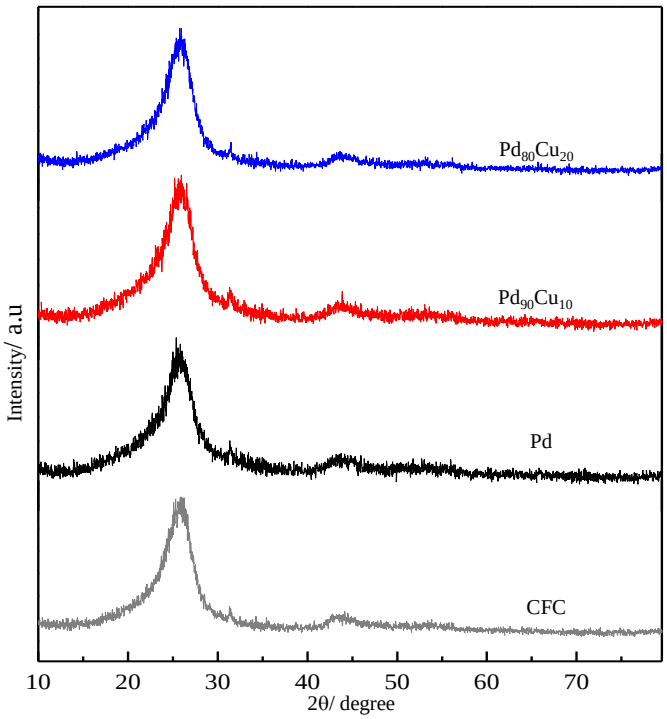

Figure S1. The XRD patterns for the electrodeposited Pd, $Pd_{90}Cu_{10}$ and $Pd_{80}Cu_{20}$ samples. XRD pattern for CFC substrate is also given for comparison.