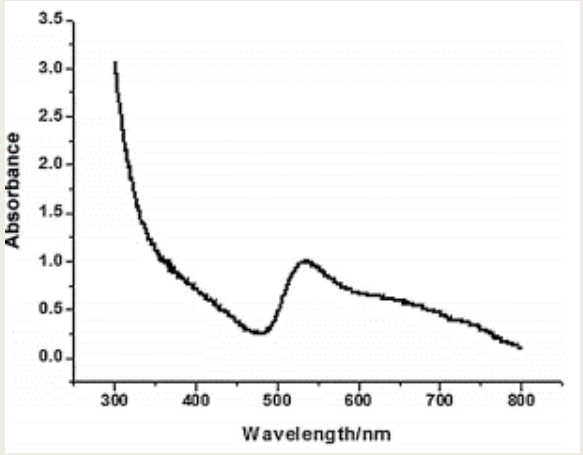
Electrochemical behaviour of gold nanoparticles and Co tetraaminophthalocyanine on glassy carbon electrode

Objective of work

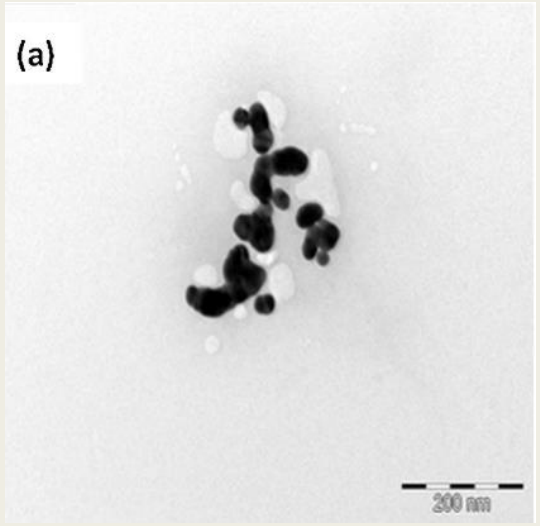
To demonstrate that the electropolymerization of cobalt tetraamino phthalocyanine (CoPc(NH2)4) in the surface of glassy carbon electrodes followed with electrodeposition of gold nanoparticles can offer a high electrocatalytic activity.

Sample description

The gold nanoparticles were obtained by electroreduction of 1 mM $HAuCl_4$ solution in 0.1 M $NaNO_3$. It was used cyclic voltammetry (10 scans) from 1 to 0 V.



Absorption spectra of AuNPs in DMF



TEM image of AuNPs evaporated from DMF solutions

Sample preparation for UV-Vis

The gold nanoparticles were removed from the electrodes by sonicating for 5 min and immersed to dimethyformamide (DMF). The DMF presented pale purple as color.

Equipment and conditions for UV-Vis

The UV-Vis was recorded using Shimadzu UV-2550 spectrophotometer.

Data recollected

They intended to the wavelength to excite the metal material as sensor. It was found that the surface plasmon absorption peak at 534 nm. Besides, the broad between 600 and 800 nm become more pronounced if there are more formation of aggregates, increasing the particle size.