

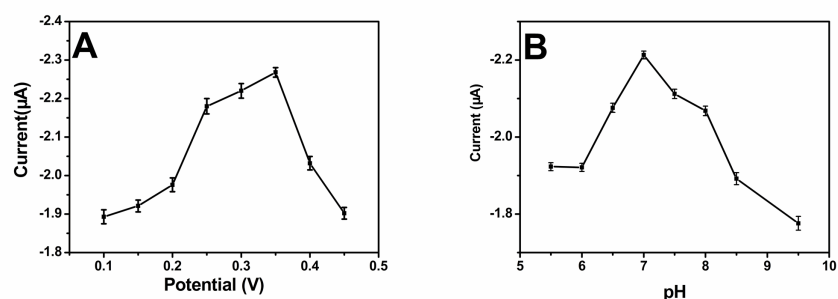
## Electronic Supplementary Information

### Optimization of the nanoAu/PEDOT modified electrode prepared conditions

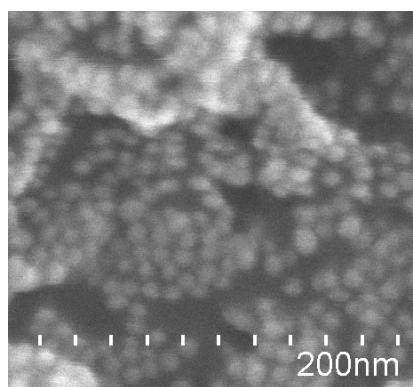
To obtain the optimum response conditions for the sensor based on PEDOT/nanoAu modified electrode, the effect of pH and applied potential were investigated.

The dependence of the sensor response on applied potential was evaluated from 0.10 to 0.45V in 0.1 M PBS (pH 7.0) with the dopamine concentration of 1.0 mM, and the response current was saturated since +0.35 V. So a working potential of +0.35 V was chosen for further works in order to accomplish a sensitive detection of the dopamine and also to minimize the number of potential interferents able to be reduced at the electrode.

The pH effect of PBS solution on the response for 1.0 mM dopamine ranging from 5.5 to 9.5 was examined at 25°C. By taking into account the response sensitivity and selectivity, pH 7.0 was selected for the next experiments. These two influence factors were coincident with the optimum pH and applied potential for sensor based on PEDOT, which indicated that the catalysis function of the PEDOT was not affected by the immobilization of gold colloids particles.



**Fig.1:** Effect of the (A) working potential; (B) pH of the PBS electrolyte on the nanoAu/PEDOT modified electrode response to dopamine. The current response was measured through the chronoamperometry with 1.0 mM dopamine.



**Fig 2:** SEM image of the nanoAu/PEDOT