Electronic Supplementary Material (ESI) for RSC Advances.

Supplementary Information
Flower-like ZnO-Ag_2O nanocomposite for label and mediator free direct sensing of dinitrotoluene

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Contents:

1. Optimization of amount of coating for fabrication of ZnO-Ag_2O composite nanoflowers modified gold electrode

To optimize the amount of coating used for the fabrication of the modified gold electrode, DPV measurements in PBS with 20 µM 2,4 DNT were performed using the electrode coated with different amount (1-7 µL) of the nanoparticle slurry as shown in **Fig. 1S**. It was observed that when the coating amount was 5 µL, maximum current response was obtained. Therefore, 5 µL amount was fixed for fabrication of the modified electrode for further studies.

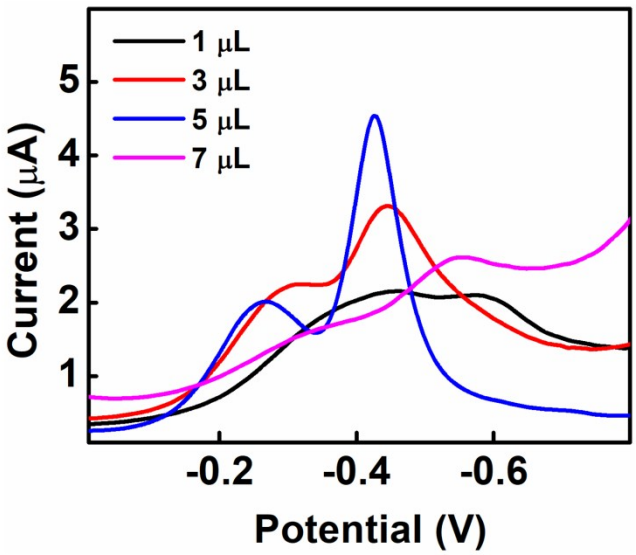

Figure 1S. DPV for 2,4-DNT (20 µM in pH 7, 0.1 mM PBS) with different amount of coating (1µL-7µL).

2. Estimation of the electrode surface area

For estimation of the electrode surface area, scan rate studies were performed with solution of 0.1 mM potassium ferricyanide in 0.1 M KCl, and cyclic voltammograms were recorded for different scan rates (20-150 mVs^{-1}) using the modified electrode. A plot of peak current (I_p ; in Amperes) vs. square root of scan rate ($v^{1/2}$; in $(V\ s^{-1})^{1/2}$) was plotted for the anodic peak current values as shown in **Fig. 2S** (a-b), and the value of the slope obtained was used in Randles-Sevcik equation at 25°C (S.1). The electrode surface area calculated was 0.033 cm^2.

$$I_p = 2.69*10^5\ n^{3/2}\ A\ D^{1/2}\ C\ v^{1/2} \qquad (S.1)$$

where, Ip = peak current value in Amperes, n = number of electrons involved in the electrochemical process (1 for electrochemical oxidation/reduction of pot. ferricyanide), A = electrode area in cm^2, D = diffusion coefficient in $cm^2\ s^{-1}$, C = concentration in mol cm^{-3}, v = scan rate in V s^{-1}.

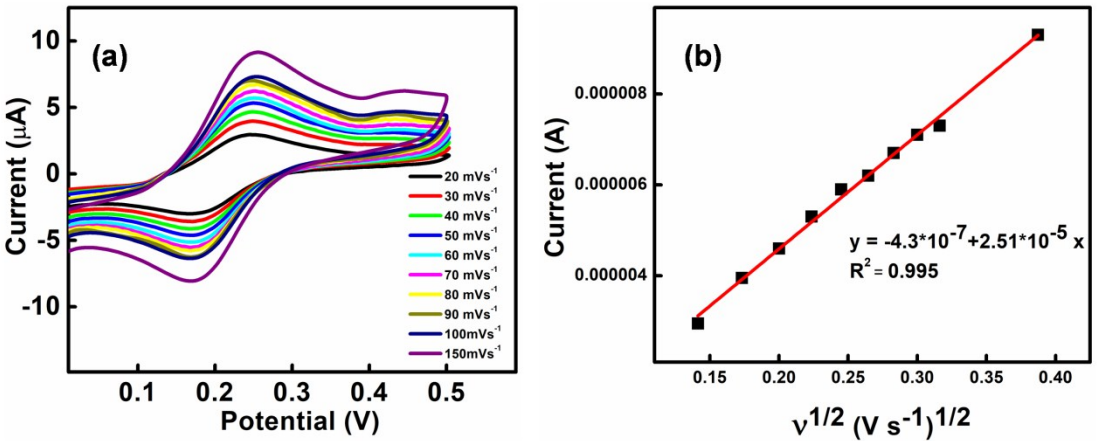

Figure 2S (a) CV for different scan rates (20-150 mVs^{-1}) using the modified electrode in solution of 0.1 mM potassium ferricyanide in 0.1 M KCl (b) plot of peak current (I_p ; in Amperes) vs. square root of scan rate ($v^{1/2}$; in $(V\ s^{-1})^{1/2}$)