# An Electrochemical Sensor Based on Gold Nanodendrite/Surfactant Modified Electrode for Bisphenol A Detection

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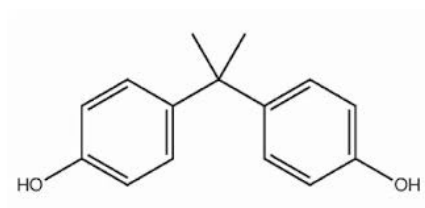
*(Supplementary Information)*
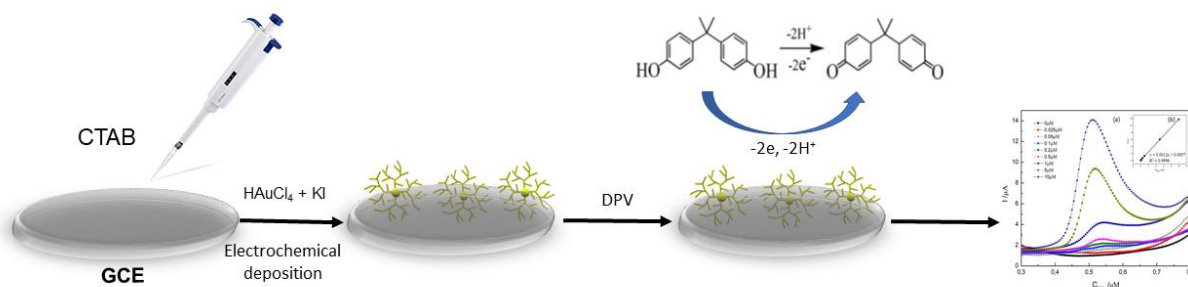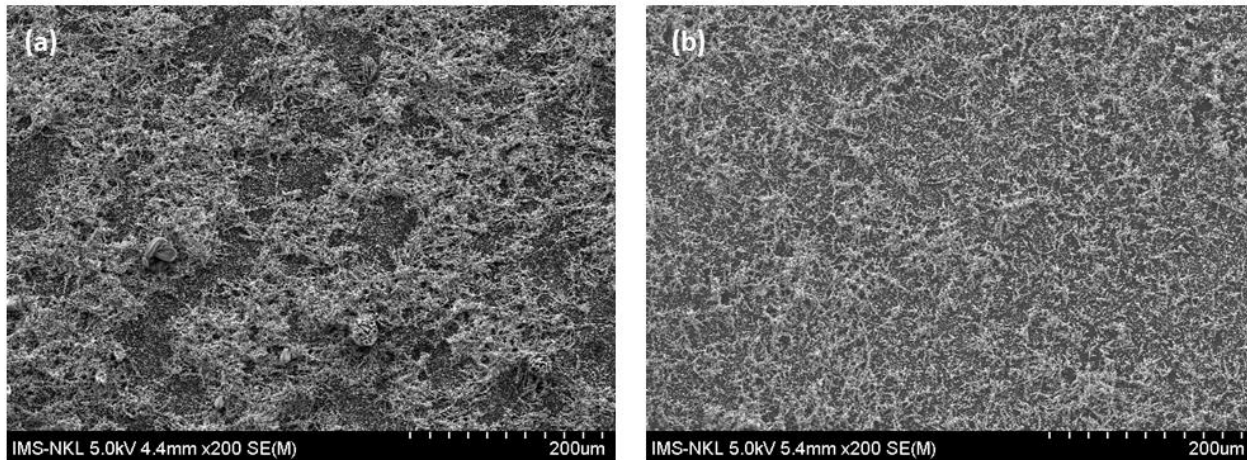


Graphical abstract



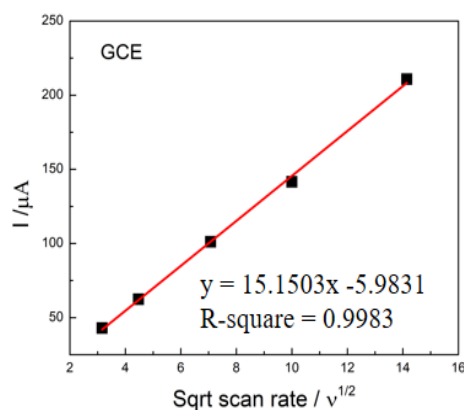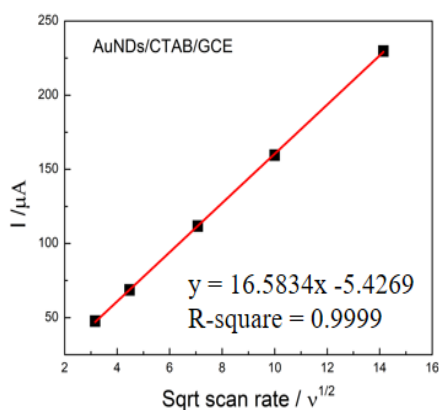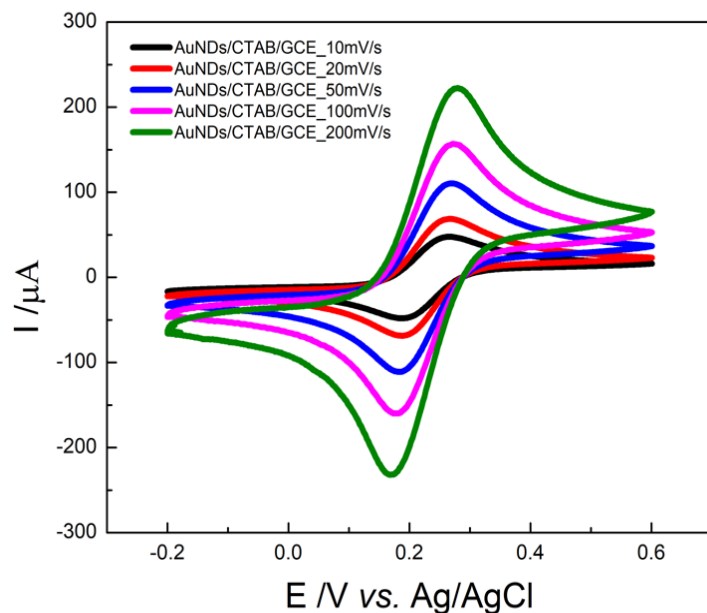Fig. S1: Structure of studied coumpound

Fig. S2: SEM images of AuNDs created on GCE without (a) and with CTAB layer

Randle − Sevick equation:

$$I_p = (2.69 \times 10^5)n^{3/2}ACD^{1/2}v^{1/2}$$

A is the active surface area $(ECSA)(cm^2)$

D is the diffusion coefficient of $[K_3Fe(CN)_6]$ $(6.605 \times 10^{-6} \ cm^2s^{-1})$

n = 1 is the number of transferred electrons for $[Fe(CN)_6]^{3-/4-}$ redox couple

C is the bulk concentration of $[K_3Fe(CN)_6]$ (5 mM)

Fig. S3.  CVs of AuNDs/CTAB/GCE in 5 mM K$_3$Fe(CN)$_6$/K$_4$Fe(CN)$_6$ + 0.2 M PBS at different scan rates and used for calculation of electroactive surface area (ECSA)
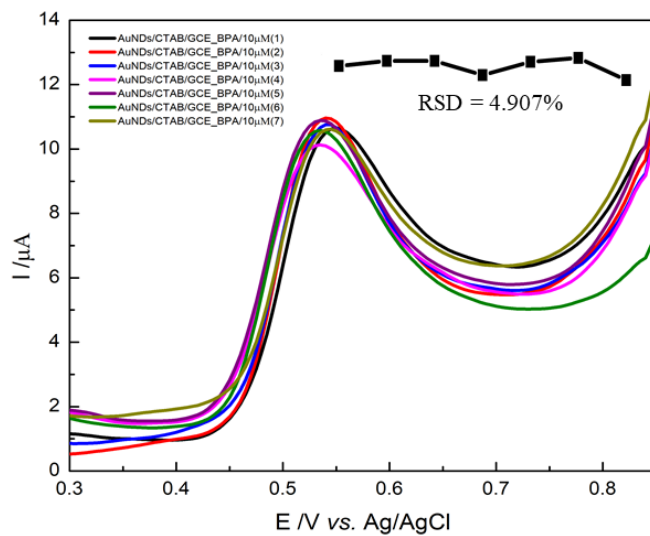
Fig. S4. Reproducibility of seven AuNDs/CTAB/GCE sensors at 10 µM BPA in PBS pH 7
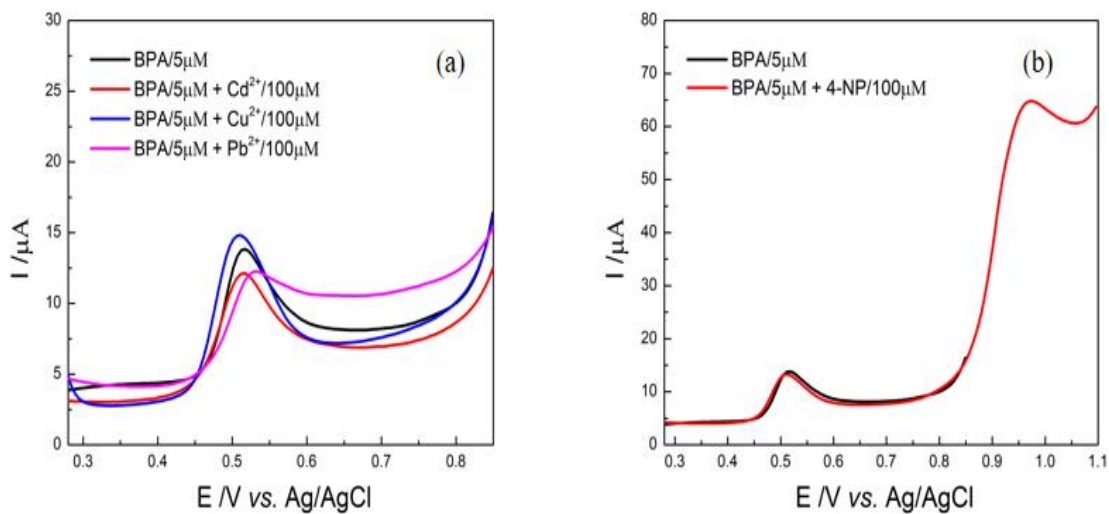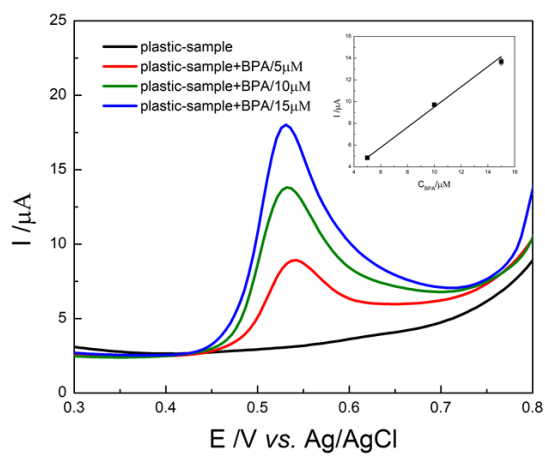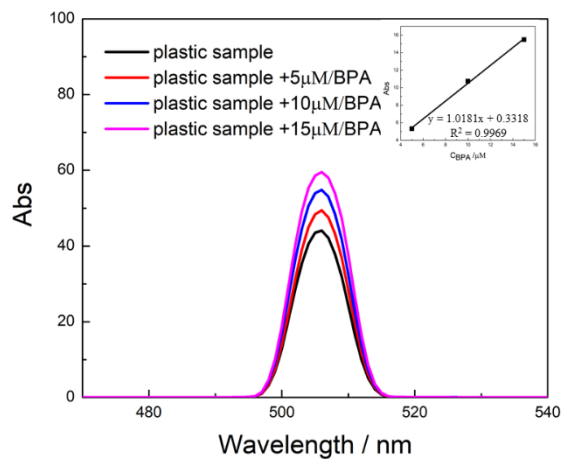


Fig. S5. Voltammograms of BPA 5 µM on AuNDs/CTAB/GCE before and after adding interferents at concentrations 20 time higher than that of analyte, BPA with $Cd^{2+}$, $Pb^{2+}$, $Cu^{2+}$ (a) and with 4-nitrophenol (b)

(a)



(b)

Fig. S6. Voltammograms of solution extracted from plastic drinking water bottle spiked BPA at different concentrations recorded on AuNDs/CTAB/GCE sensor (a) and by fluorescence method (b)