Electronic Supplementary Information

Femtomolar sensitivity of bisphenol A photoelectrochemical aptasensor based on TiO_2 nanocrystals decorated nitrogen doped graphene

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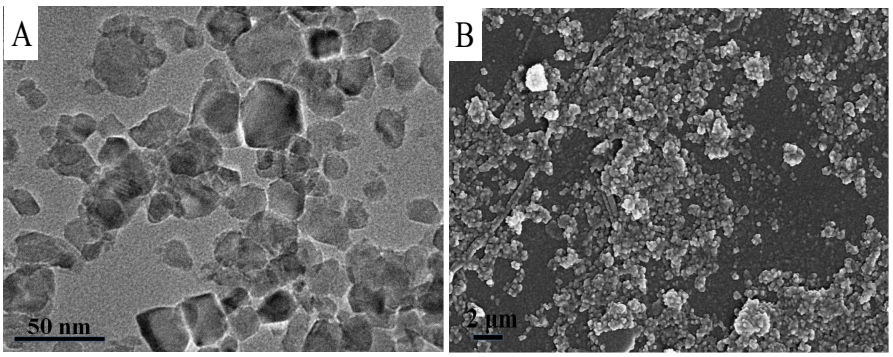

Fig. S1 TEM image (A) of TiO_2 and SEM image (B) of TiO_2.

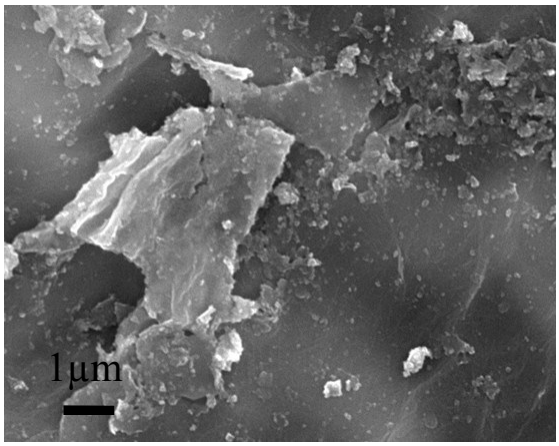

Fig. S2 SEM image of TiO_2/NG.

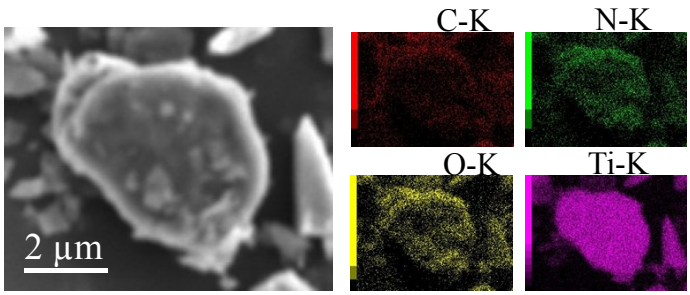

Fig. S3 Corresponding SEM image of EDS mapping for TiO_2/NG and elemental mapping of TiO_2/NG.

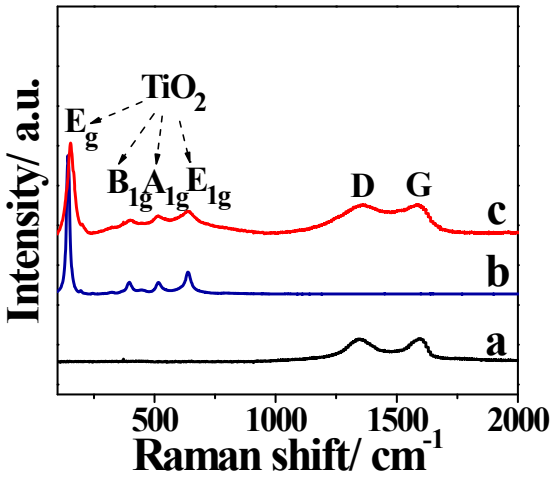

Fig. S4 Raman spectra of (a) GO, (b) TiO_2, and (c) TiO_2/NG.

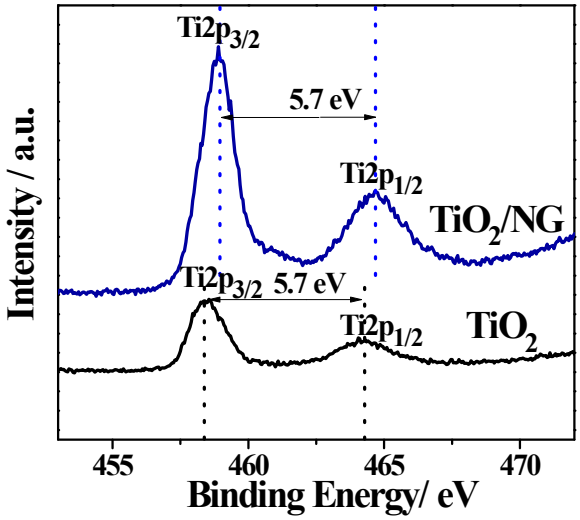

Fig. S5 Ti 2p XPS spectrum of the TiO_2 and TiO_2/NG.

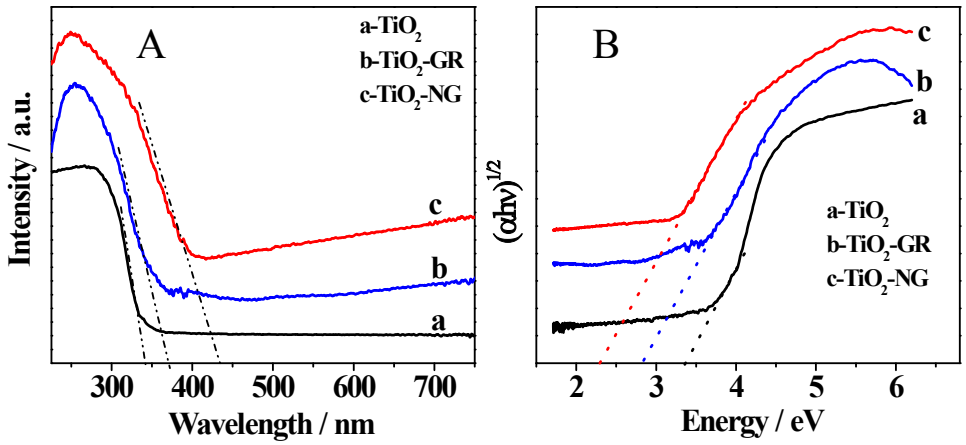

Fig. S6 (A) UV-visible diffuse reflectance spectra (DRS) of TiO_2, TiO_2/GR and TiO_2/NG. (B) Band gap of TiO_2, TiO_2/GR and TiO_2/NG.

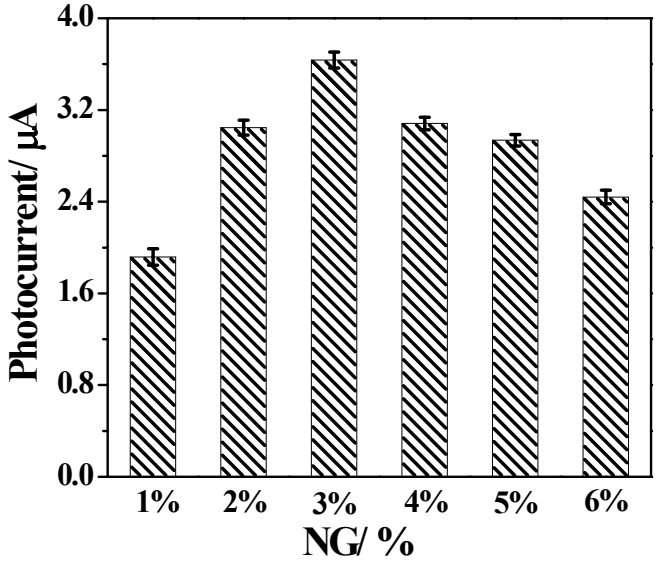

Fig. S7 The photocurrent responses of 1%, 2%, 3%, 4%, 5% and 6% TiO_2/NG/ITO electrodes recorded in PBS at a bias potential of +0.4V (vs SCE).

Table S1 Comparison of different methods for detection BPA

Method	Linear range / M	Detection limit / M	Reference
Colorimetry	1.1×10^{-6} to 7.01×10^{-5}	5.8×10^{-7}	1
ECL[a]	1×10^{-9} to 1×10^{-4}	3×10^{-10}	2
HPLC[b]	-	3.07×10^{-12}	3
EIS[c]	1×10^{-10} to 1×10^{-8}	-	4
DPV[d]	5×10^{-8} to 5.5×10^{-5}	1.2×10^{-9}	5
PEC[e]	1×10^{-12} to 1×10^{-8}	3×10^{-13}	This work

a ECL-electrochemiluminescence

b HPLC-high-performance liquid chromatographic

c EIS-electrochemical impedance spectroscopy

d DPV-differential pulse voltammetry

e PEC-photoelectrochemical

References

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