Electrochemical enzyme biosensor bearing biochar nanoparticle as signal enhancer for bisphenol A detection in water

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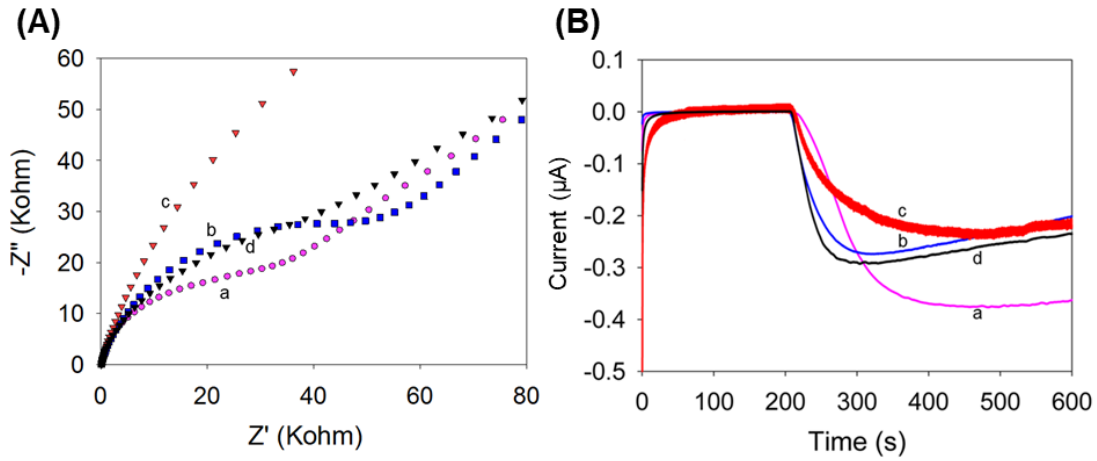

Fig. S1 (A) Nyquist plots of the four different biosensors in 5 mM $K_3Fe(CN)_6$ containing 0.1 M KCl. (B) The amperometric current profiles of the four biosensors in response to the same amounts of BPA (3 μM) with the potential of 0.08 V versus Ag/AgCl. The four biosensors are: (a) BCNPs/Tyr/Nafion/GCE, (b) GN/Tyr/Nafion/GCE, (c) MWNTs/Tyr/Nafion/GCE, (d) GP/Tyr/Nafion/GCE.

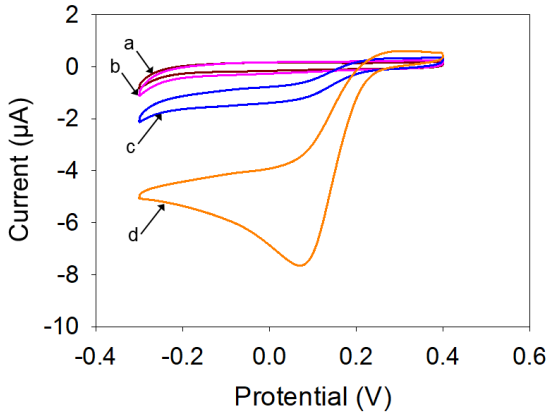

Fig. S2 Cyclic voltammograms of BCNPs/Tyr/Nafion/GCE (BCNPs 0.375 mg mL^{-1}, Tyr 0.5 mg mL^{-1}) electrode in blank (a) and different concentrations of BPA: (b) 1 μM, (c) 10 μM, (d) 100 μM in PB (50 mM, PH 7.0) with scan rate 50 mV s^{-1}.

Table S1 Comparison of analytical characteristics toward bisphenol A for reported biosensors

Biosensor	Sensitivity [μA mM^{-1} cm^{-2}]	Linear range [μM]	LOD [μM]	Reference
Tyr–AuNPs/SPCE	419	0.042–36	0.01	[1]
Tyr–NiNPs/SPCE	758	0.91–48	0.0071	[1]
Tyr–Fe_3O_4/SPCE	544	0.027–40	0.0083	[1]
Tyr–polylysine-SWCN/GCE	788	0.004–11.48	0.00097	[2]
Laccase-CB/SPE	70.8	0.5–50	0.2	[3]
Tyr–SWCP–CPE	138	0.1-12	0.02	[4]
GN-CNT/GCE	-	0.06–10	42	[5]
MNPs-rGO/GCE	18.1	0.06-11	0.17	[6]
BCNPs/Tyr/Nafion/GCE	985	0.02-10	0.00318	This work

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