Supporting information

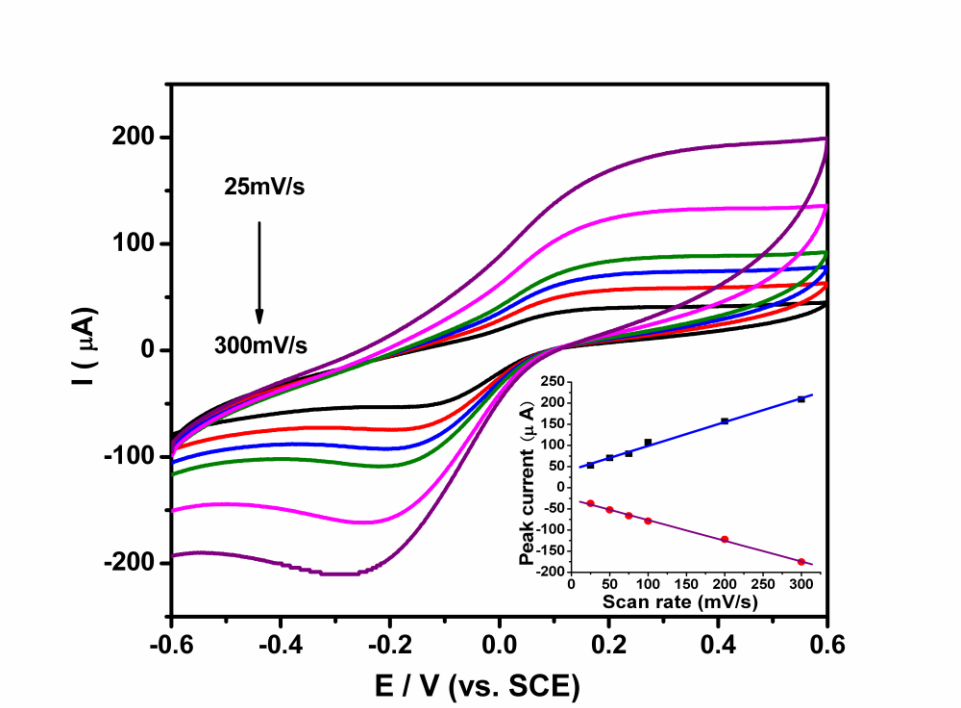

Fig. S1 Cyclic voltammograms of $(PSS\text{-}GS/PANI)_6$ multilayer film in PBS buffers (pH 7.2) with different scan rates.

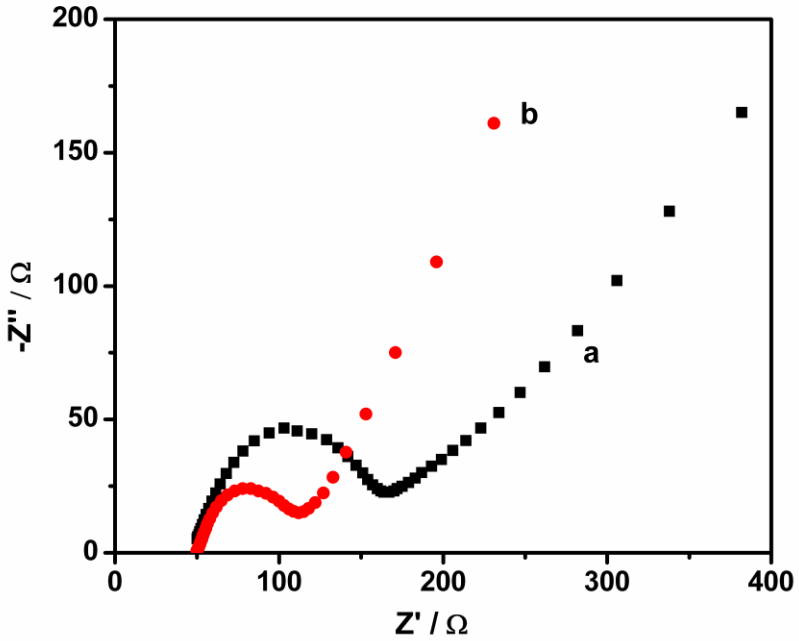

Fig. S2 Nyquist plots of electrochemcal impedance spectroscopy on (a) a bare ITO electrode and (b) $(PSS\text{-}GS/PANI)_6$ modified electrode in 5 mM $Fe(CN)_6^{3-}$. Electrolyte: 0.1 M KCl.

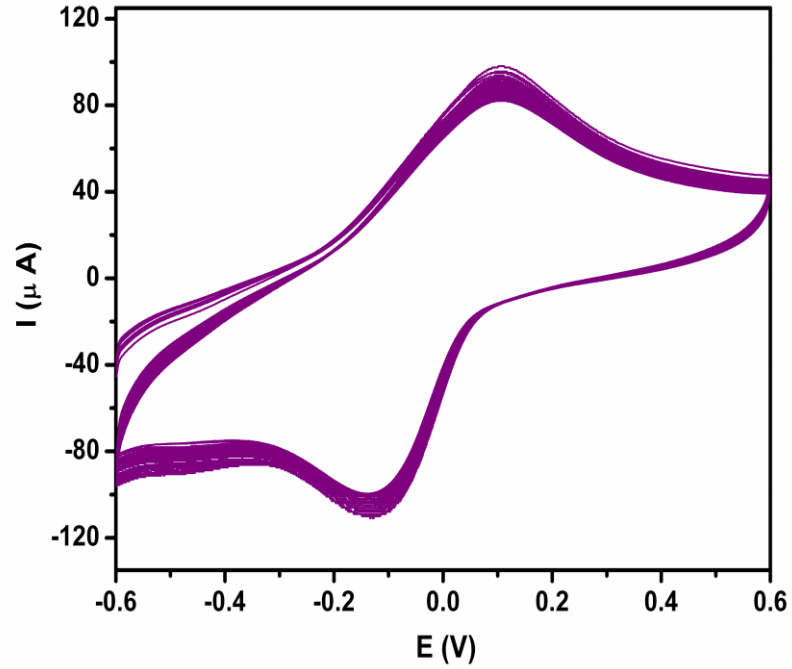

Fig. S3 Cyclic voltammograms of $(PSS\text{-}GS/PANI)_6$ modified electrode in 0.1 M PBS

buffer solution, pH 7.2 upon repeated cyclic potential scan. Scan rate was 100 mV/s.

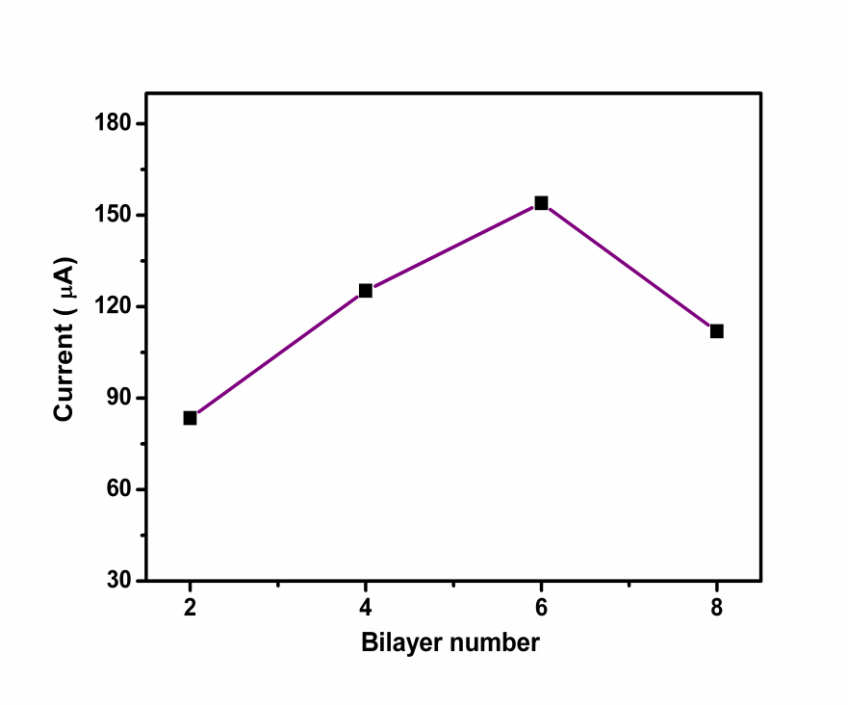

Fig. S4 Dependence of the response of the electrode modified with $(PSS\text{-}GS/PANI)_n$ (n= 2, 4, 6, 8) to 1.0 mmol L^{-1} H_2O_2 measured at -0.3 V.

Table S1 A comparison of this work with literature work regarding the performance of the H_2O_2 using an electrode modified with different materials.

Electrode material	Detection limit(μM)	Linear range (mM)	Reference
Graphene/AuNPs/chitosan	180	0.2~4.2	Biosens.Bioelectron., 2010, 25, 1070
MWNTs/chitosan	10	0.0167~0.74	Talanta 2006, 68, 721
Ag/graphene	28	0.1~40	Macromolecules 2010, 43, 10078
graphene/Nafion/Azure I/Au	10	0.03~5	Electrochimica Acta 2013, 90, 550

PEDOT/AgNPs	7	_	Electroanalysis,2009, **21**, 1419
AgNPs/SBA-15	12	0.049–970	*J. Nanomater.*, 2008, 1, 473791
HRP/PANI	_	0.1~0.5	Electroanalysis 2009, 21, 595
CAT/PANI	_	0.064~1 mM	Biotech. Bioproc. Engin. 2009, 14, 443
PSS-GS/PANI	6	0.1~1.5	This work

Au NPs: Au nanoparticles; MWNTs: Multiwalled carbon nanotubes; PEDOT: poly[3,4-ethylenedioxythiophene]; Ag NPs: Ag nanoparticles; HRP: horseradish peroxidase; CAT: catalase