

Supporting Information (SI)

Novel disposable glucose biosensor using electrochemically reduced graphene oxide–glucose oxidase biocomposite

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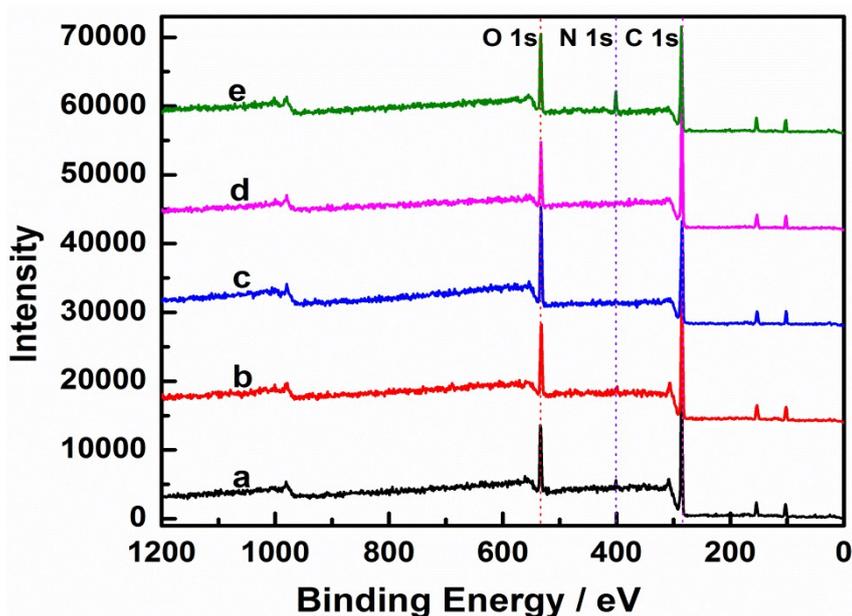


Fig. S1. XPS spectra of (a) PGE, (b) PPGE, (c) GO/PPGE, (d) rGO/PPGE, and (e) rGO-GOx/PPGE.

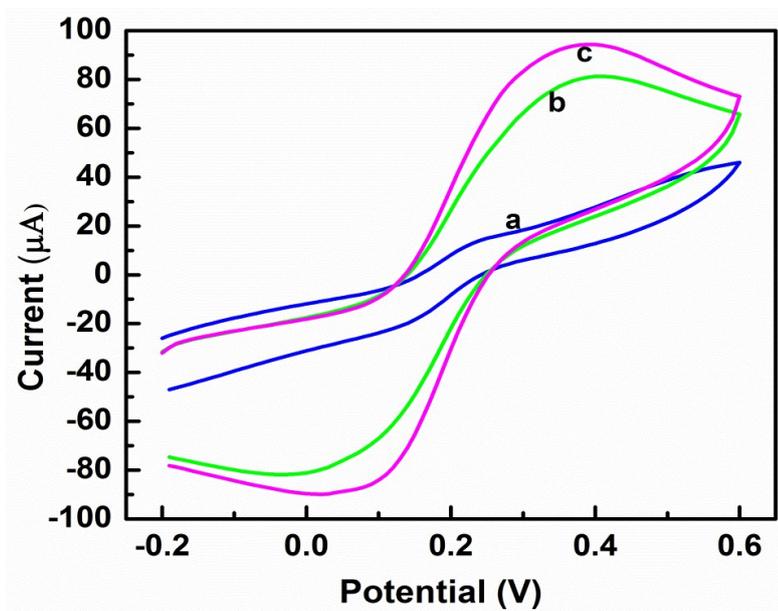


Fig. S2. Cyclic voltammograms of (a) PGE, (b) PPGE, and (c) rGO/PPGE recorded in 0.1 M KCl solution containing 10 mM $\text{K}_3\text{Fe}(\text{CN})_6$ at a scan rate of 100 mV/s.

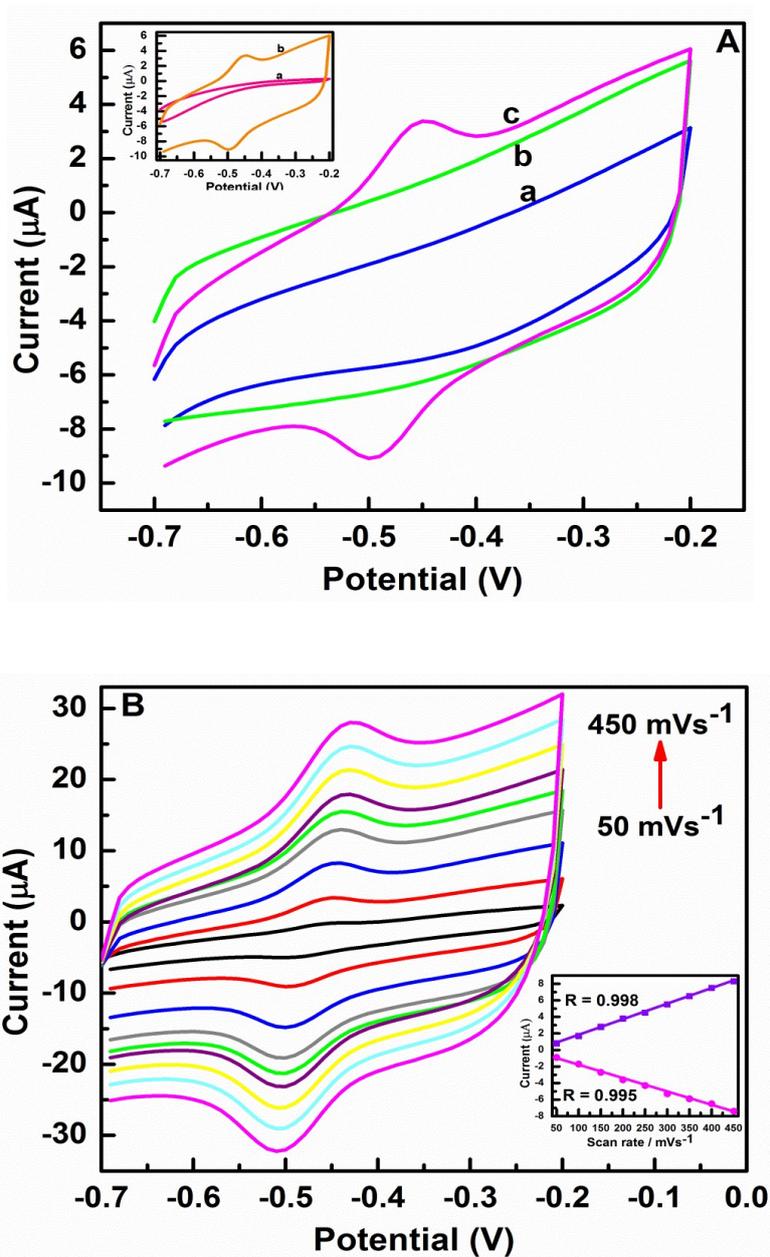


Fig. S3. (A) Cyclic voltammograms of (a) PPGE, (b) rGO/PPGE, and (c) rGO-GOx/PPGE, in N_2 saturated PBS (pH 7.0) at a scan rate of 50 mV/s . Inset: Cyclic voltammograms of (a) rGO-GOx/PPGE and (b) rGO-GOx/PPGE. (B) Cyclic voltammograms of rGO-GOx/PPGE in N_2 saturated PBS (pH 7.0) at different scan rates of 50, 100, 150, 200, 250, 300, 350, 400, and 450 mV/s . Inset: peak current vs. scan rates.

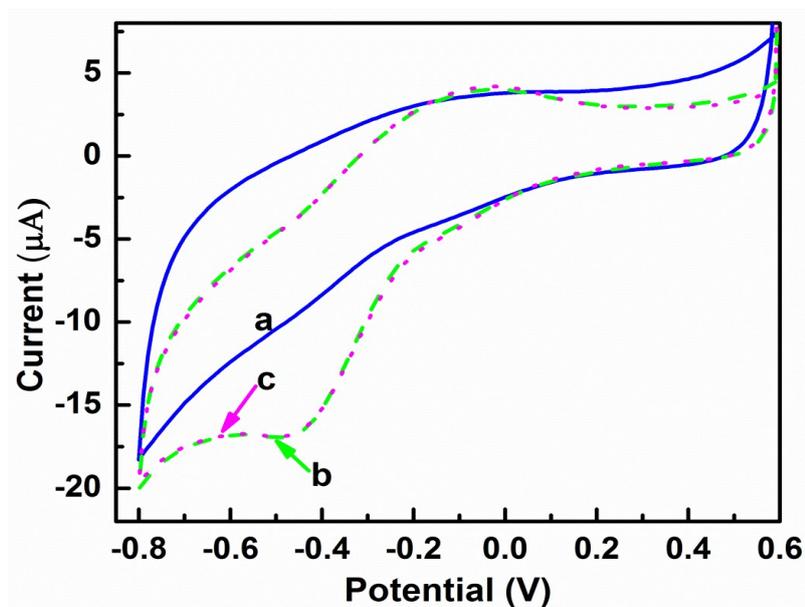


Fig. S4. Cyclic voltammograms of PPGE measured in (a) N_2 saturated PBS (pH 7.0), (b) O_2 saturated PBS, and (c) O_2 saturated PBS containing 10 mM glucose. Scan rate: 50 mV/s.

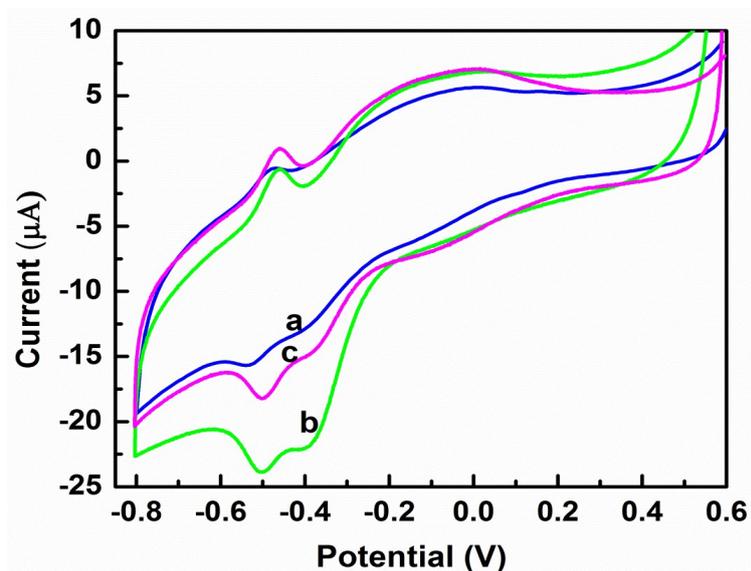


Fig. S5. Cyclic voltammograms of rGO-GOx/PPGE in (a) N_2 saturated PBS (pH 7.0), (b) O_2 saturated PBS, and (c) O_2 saturated PBS containing 10 mM glucose. Scan rate: 50 mV/s.

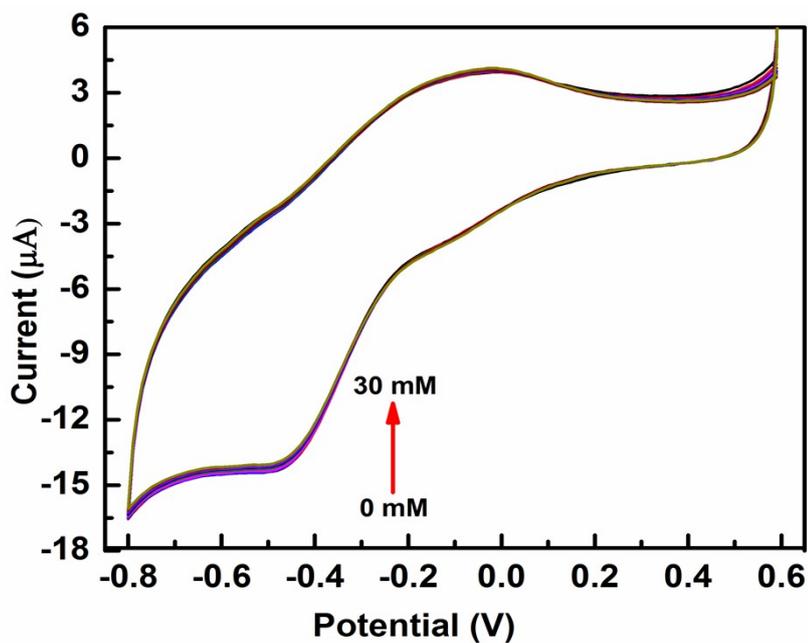


Fig. S6. Cyclic voltammograms of rGO modified PPGE in O₂ saturated 0.1 M PBS (pH 7.0) containing glucose at various concentrations.

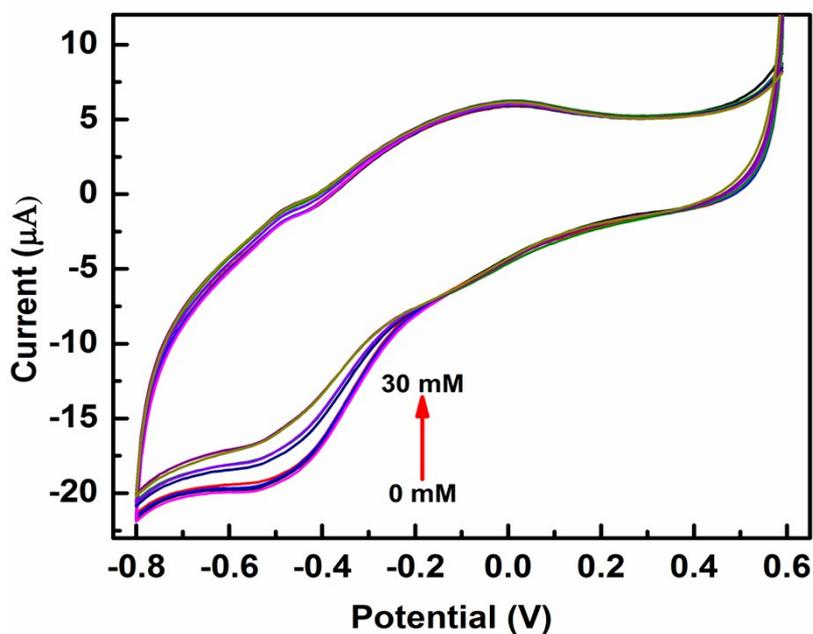


Fig. S7. Cyclic voltammograms of GOx modified PPGE in O₂ saturated 0.1 M PBS (pH 7.0) containing glucose at various concentrations.

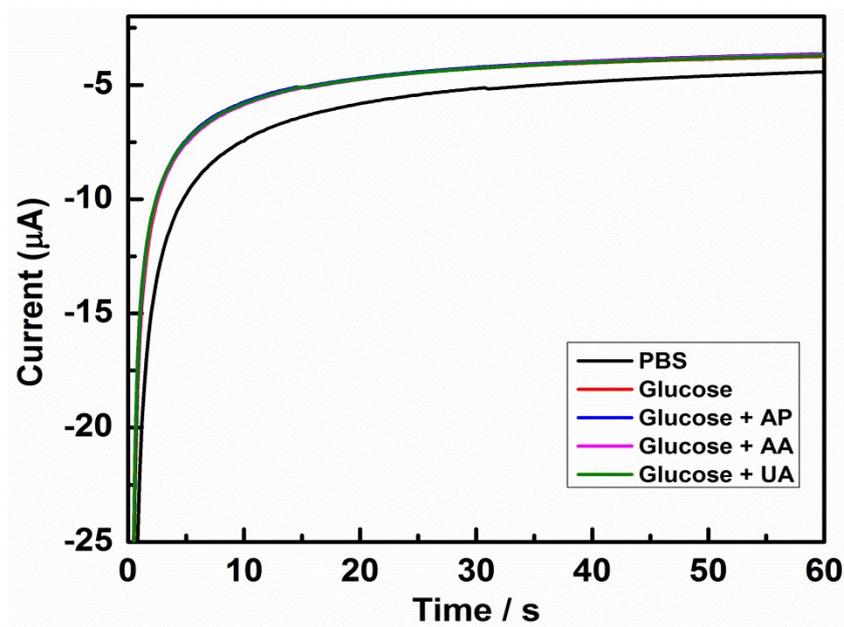


Fig. S8. Chronoamperometric response of rGO-GOx/PPGE in blank PBS, 1 mM glucose solution, and glucose solution containing 0.5 mM acetaminophen (AP), ascorbic acid (AA), or uric acid (UA) measured in O₂-saturated 0.1 M PBS (pH 7.0). The applied potential is -0.40 V.

Table S1. Recovery percentage of glucose in four human serum samples.

Samples	Added (mM)	Found (mM)	Recovery (%)
1	0.2	0.190	95
2	0.5	0.525	105
3	0.8	0.850	106.3
4	1.0	1.106	110.6