

Supporting Information

**Reagentless Amperometric Pyruvate Biosensor Based on a Prussian Blue-
and Enzyme Nanoparticle-Modified Screen-Printed Carbon Electrode**

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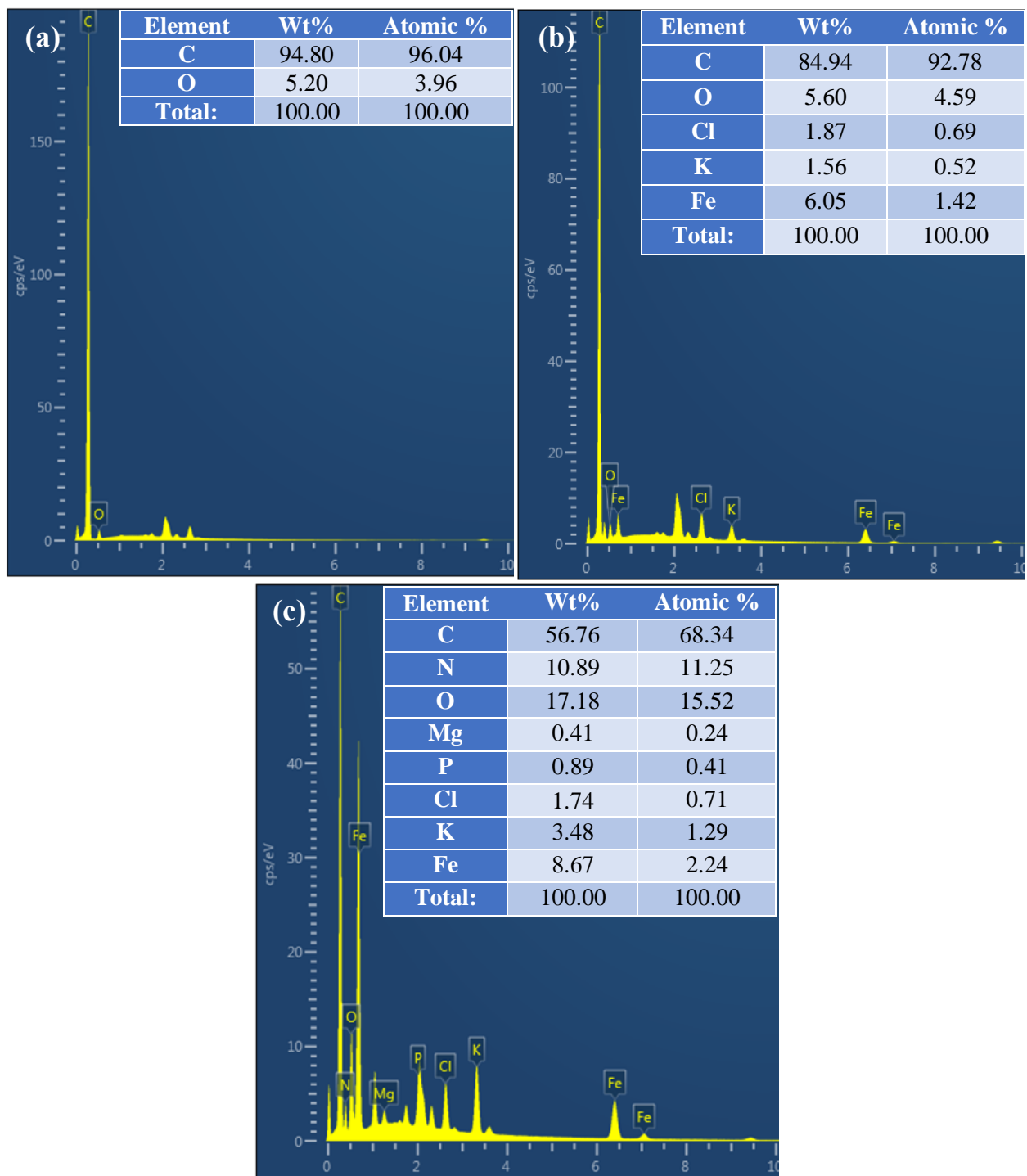


Figure S1. EDS spectrum analysis of (a) Bare SPCE, (b) PB/SPCE, and (c) PoxBNPs/PB/SPCE.

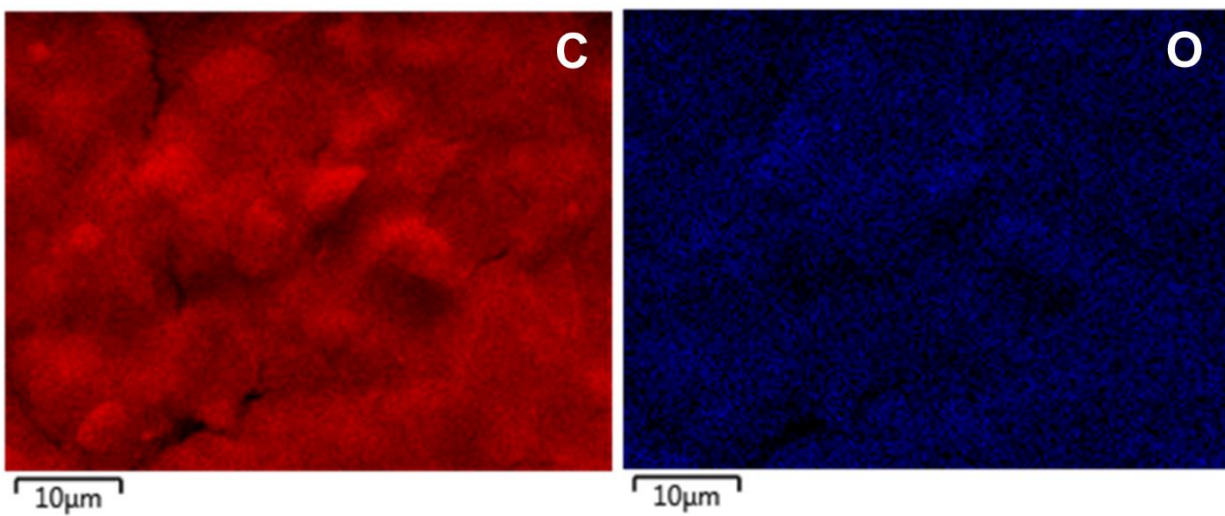


Figure S2. EDS elemental mapping of Bare SPCE.

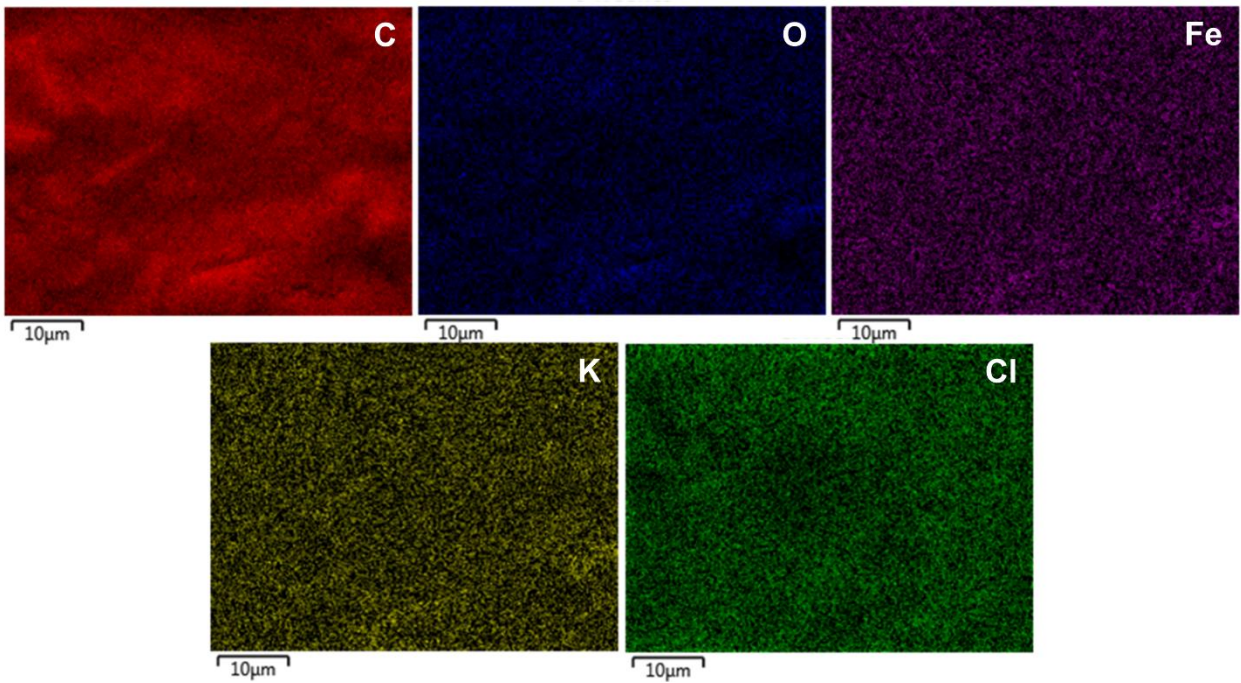


Figure S3. EDS elemental mapping of PB/SPCE.

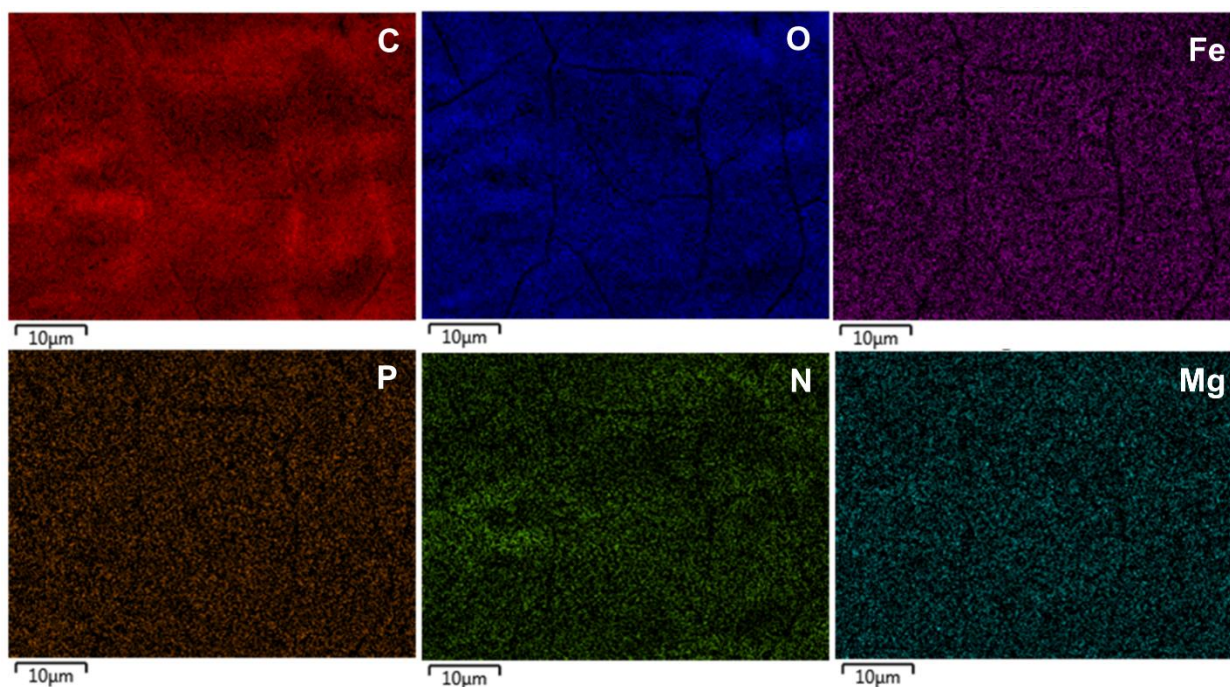


Figure S4. EDS elemental mapping of PoxBNPs/PB/SPCE.

Table S1. A comparison of various analytical parameters of amperometric Py biosensors

Composition of electrode	Method of immobilization	Reagent	Working potential (V) vs. Ag/AgCl	Dynamic linear range (μM)	LOD (μM)	Sensitivity ($\mu\text{A mM}^{-1} \text{cm}^{-2}$)	Ref.
PoxB/Polytyramine/platinized glassy carbon electrode	Covalent	Reagent	+0.65	100–3000	50	6.0	S1
PoxB/conducting polymer-modified electrode	Covalent	Reagentless	+0.10 vs. SCE	0–2500	100	0.028	S2
PoxB/3-mercaptopropionic acid and 6-aminocaproic acid/ Au electrode	Cross-linking	Reagent	+0.03	1.0–10	0.56	-	S3
PoxBNPs/Au electrode	Covalent	Reagent	+0.28	0.01–5000	0.67	-	S4
PoxBNPs/pencil graphite electrode	Adsorption	Reagent	+0.10	0.001–6000	0.58	-	S5
PoxBNPs/PB/SPCE	Adsorption	Reagentless	-0.10	10–100	0.91	40.8	Present study

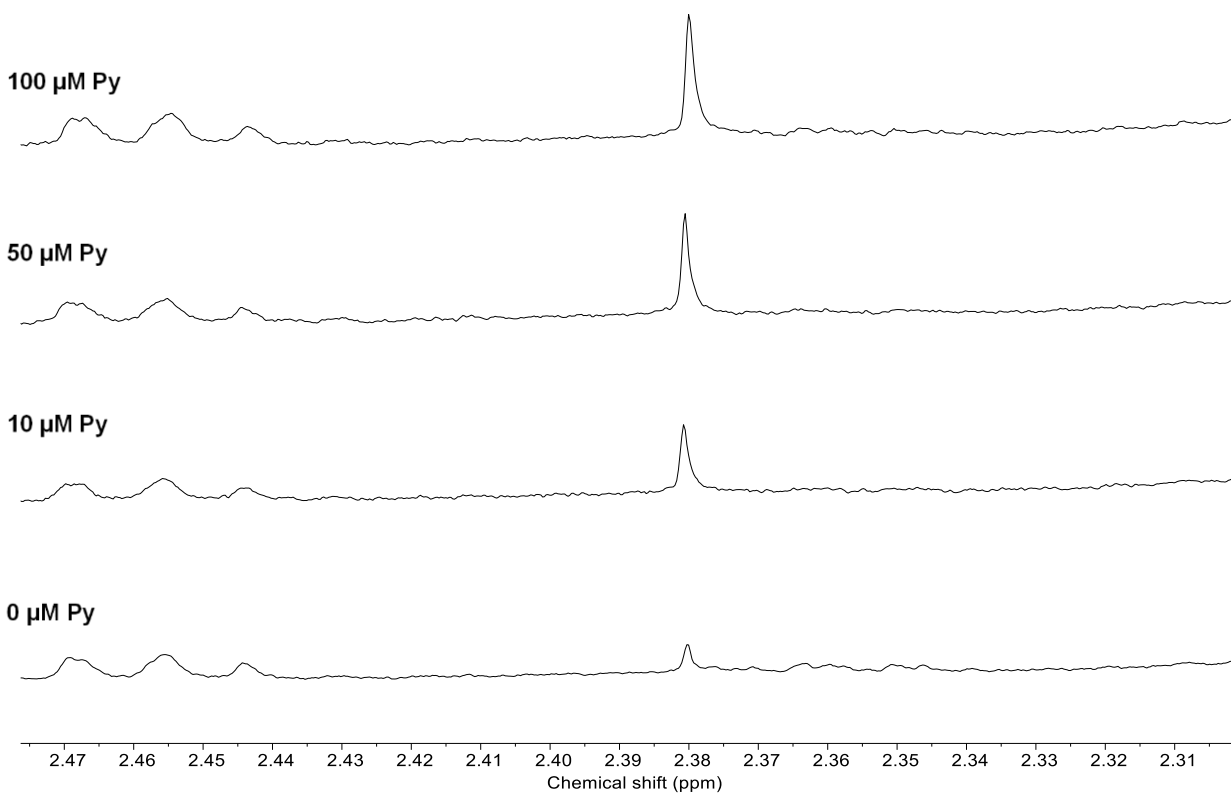


Figure S5. ¹H NMR spectrum of spiking experiment. The single resonance at 2.38 ppm was the Py. This resonance increased depending on spiked concentration of Py.

References

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- (S5) Malik, M.; Chaudhary, R.; Pundir, C. S. An amperometric pyruvate biosensor based on pyruvate oxidase nanoparticles immobilized onto pencil graphite electrode. *Process Biochem.* **2020**, *93*, 12–20.