

Synergistic Effect of Composite Nickel Phosphide Nanoparticles and Carbon Fiber on the Enhancement of Salivary Enzyme-Free Glucose Sensing

Tania P. Brito ^{1,2,3}, Nicole Butto-Miranda ⁴, Andónico Neira-Carrillo ⁴, Soledad Bollo ^{1,*} and Domingo Ruíz-León ^{2,*}

¹ Centro de Investigación de Procesos Redox (CiPRex), Facultad de Ciencias Químicas y Farmacéuticas, Universidad de Chile, Santiago 8330015, Chile

² Laboratorio de Fisicoquímica y Electroquímica del estado Sólido, Facultad de Química y Biología, Universidad de Santiago de Chile, Santiago 8330015, Chile

³ Departamento de Ingeniería Metalúrgica, Facultad de Ingeniería, Universidad de Santiago de Chile, Santiago 8330015, Chile

⁴ Departamento de Ciencias Biológicas Animales, Facultad de Ciencias Veterinarias y Pecuarias, Universidad de Chile, Santiago 8330015, Chile

* Correspondence: sbollo@ciq.uchile.cl (S.B.); domingo.ruiz@usach.cl (D.R.-L.)

Figure S1: Scanning transmission electron microscopy (STEM) of the (a) *in situ* FC/Ni₂P composite and (c) Ni₂P. (b) Gaussian particle size distribution of the *in situ* FC/Ni₂P composite and (d) Ni₂P from STEM images.

Figure S2: SEM images of fibers obtained by electrospinning (a) without heat treatment, (b) dried at 110°C, (c) stabilized at 250°C, and (d) carbonized at 700°C, with their average diameters.

Figure S3: SEM images of fibers obtained by electrospinning (a) without heat treatment, (b) dried at 110°C, (c) stabilized at 250°C, and (d) carbonized/reduction at 700°C, with their average diameters.

Figure S4: EDX spectrum per point of Figure 2, corresponding to FC/Ni₂P *in situ* composite.

Table S1: Summary EDX analysis by point of the *in situ* FC/Ni₂P composite of figure 2.

Figure S5: Thermogravimetric analysis (TGA) of *in situ* FC/ Ni₂P composite.

Figure S6: Cyclic voltammetry of GCE/FC/Ni₂P *in situ* modified electrodes in the presence (red lines) and absence of glucose (black lines) in different concentration of NaOH solution (a) pH = 10 (b) pH = 11 and (c) pH = 12. Conditions: additions of 1.00 mM glucose, scan rate= 50.0 mVs⁻¹.

Figure S7: (a) Cyclic voltammetry of the GCE/FC/Ni₂P *in situ* electrode in the presence of 1mM glucose at different scan rates (mVs⁻¹). (b) the corresponding plots of current density vs the square root of scan rate.

Figure S8: Amperometric response of glucose in artificial saliva for standard addition method (a) 18 µM and (b) correspond to the calibration curves, corresponding to three measurements.

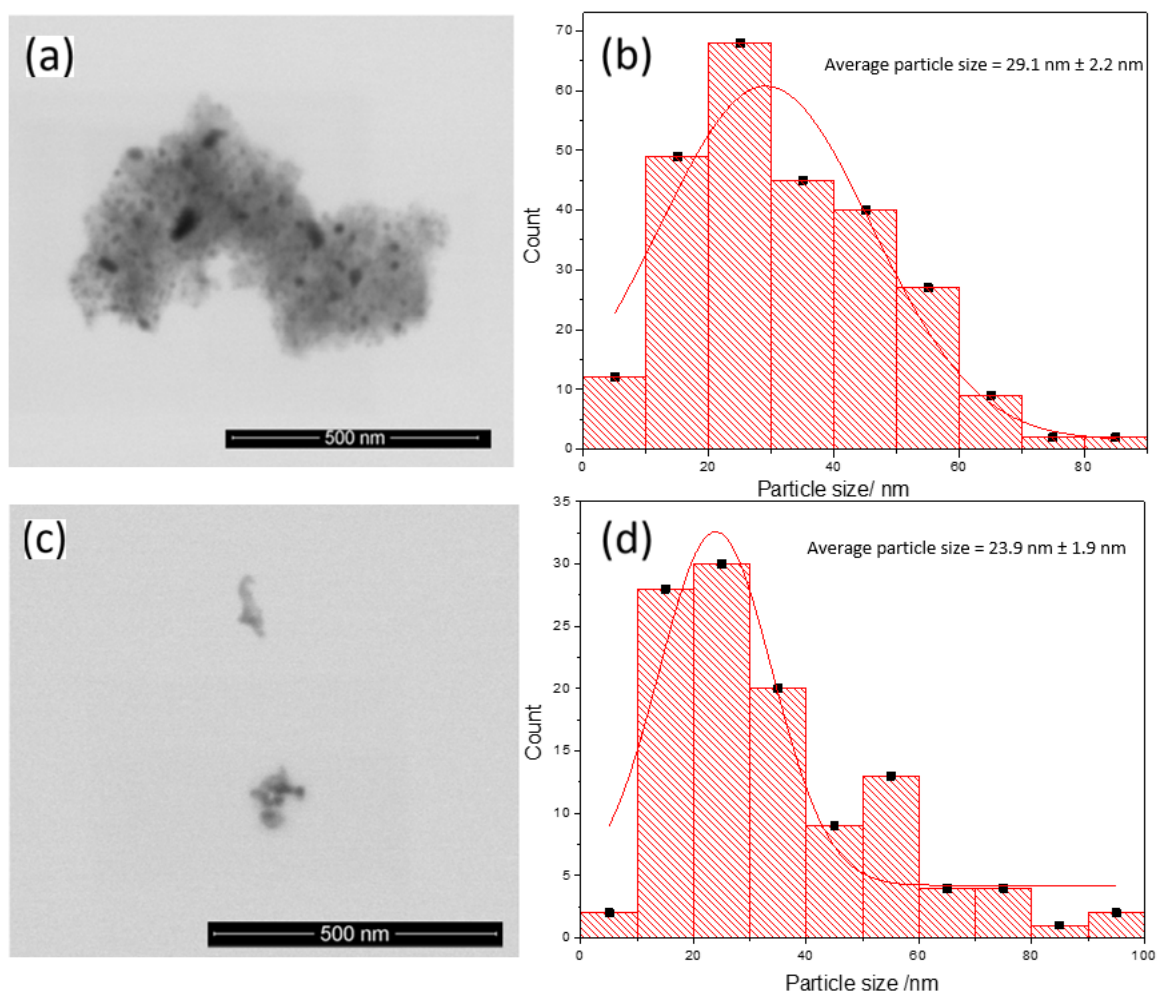


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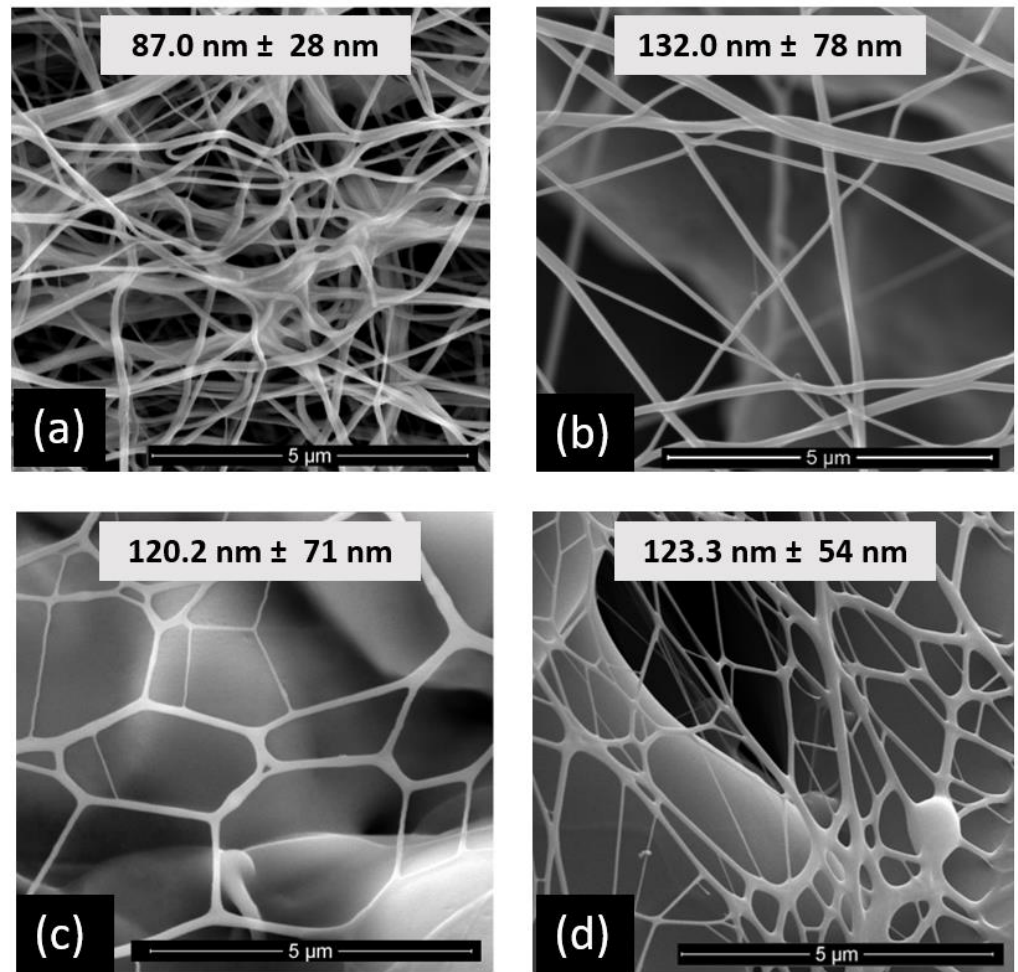


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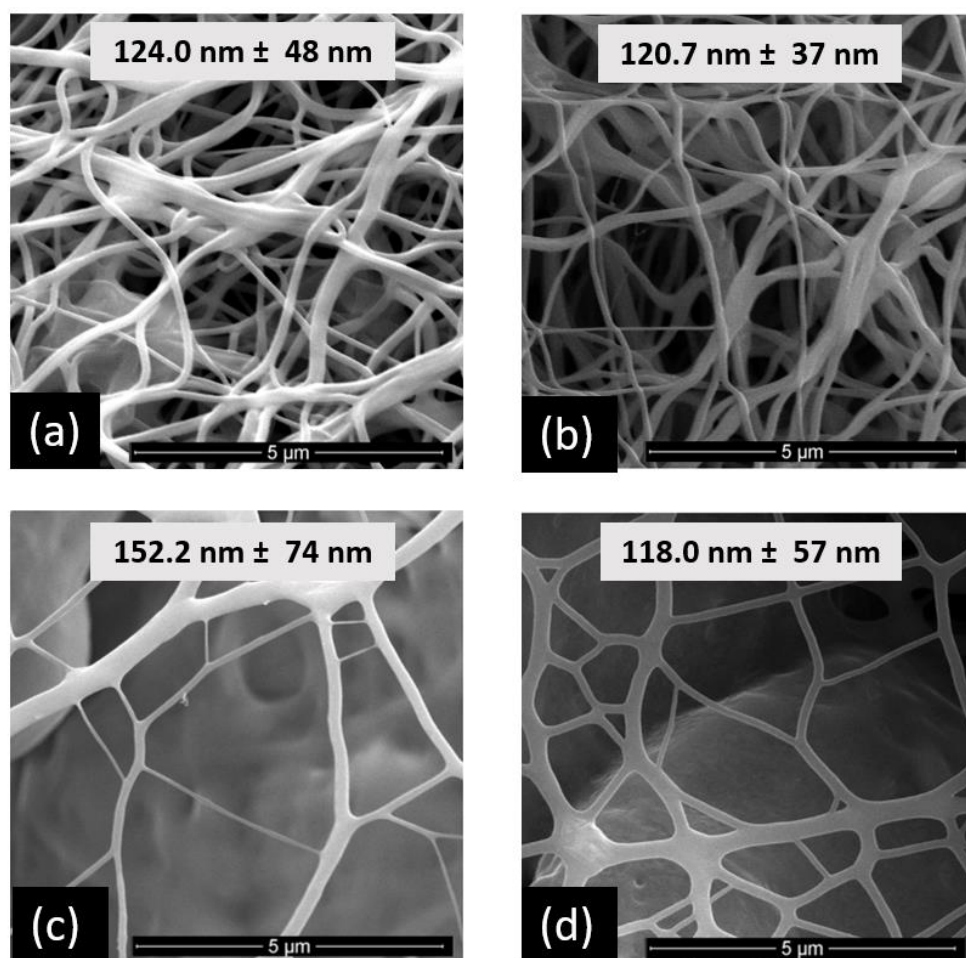


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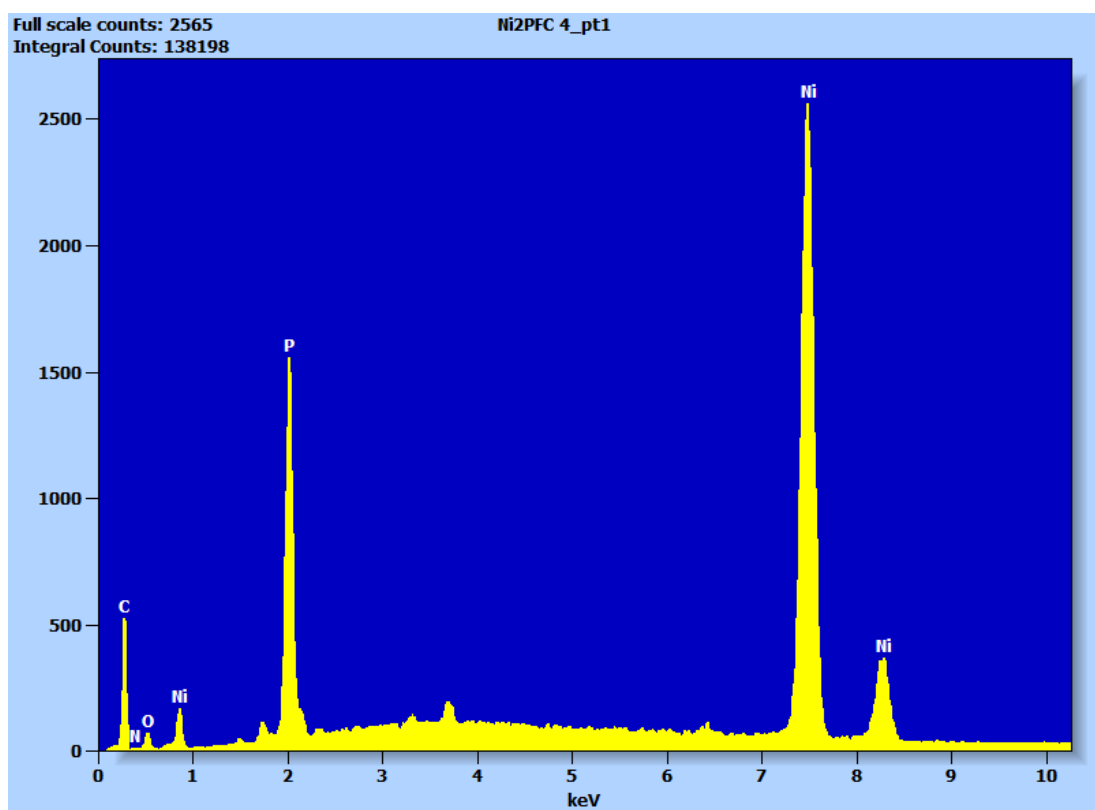


Figure S4. EDX spectrum per point of Figure 2, corresponding to FC/Ni₂P in situ composite.

Table S1: Summary EDX analysis by point of the in situ FC/Ni₂P composite of figure 2.

Element	Point 1	Point 2	Point 3	Point 4	Point 5
	Atom %	Atom %	Atom %	Atom %	Atom %
P K	31.58	31.90	31.98	31.62	32.26
Ni K	68.42	68.10	68.02	68.38	67.74
	100.00	100.00	100.00	100.00	100.00

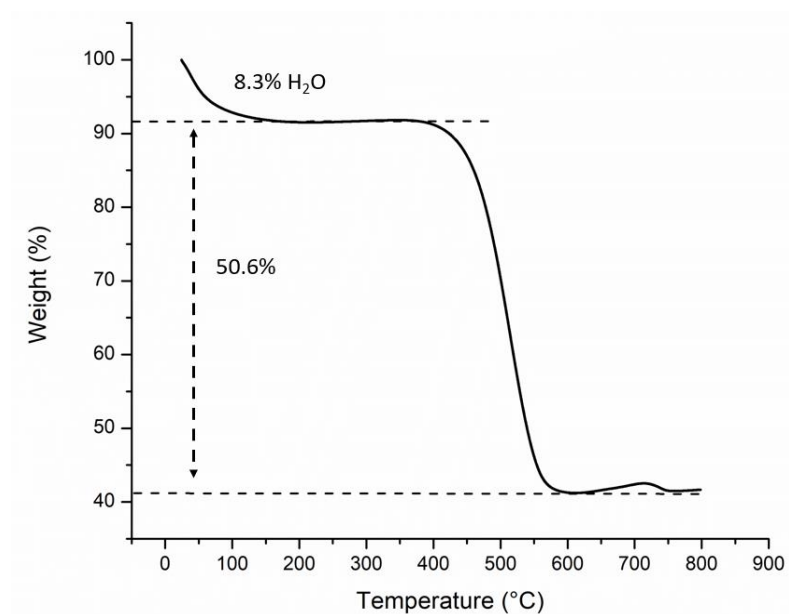


Figure S5. Thermogravimetric analysis (TGA) of *in situ* FC/ Ni₂P composite.

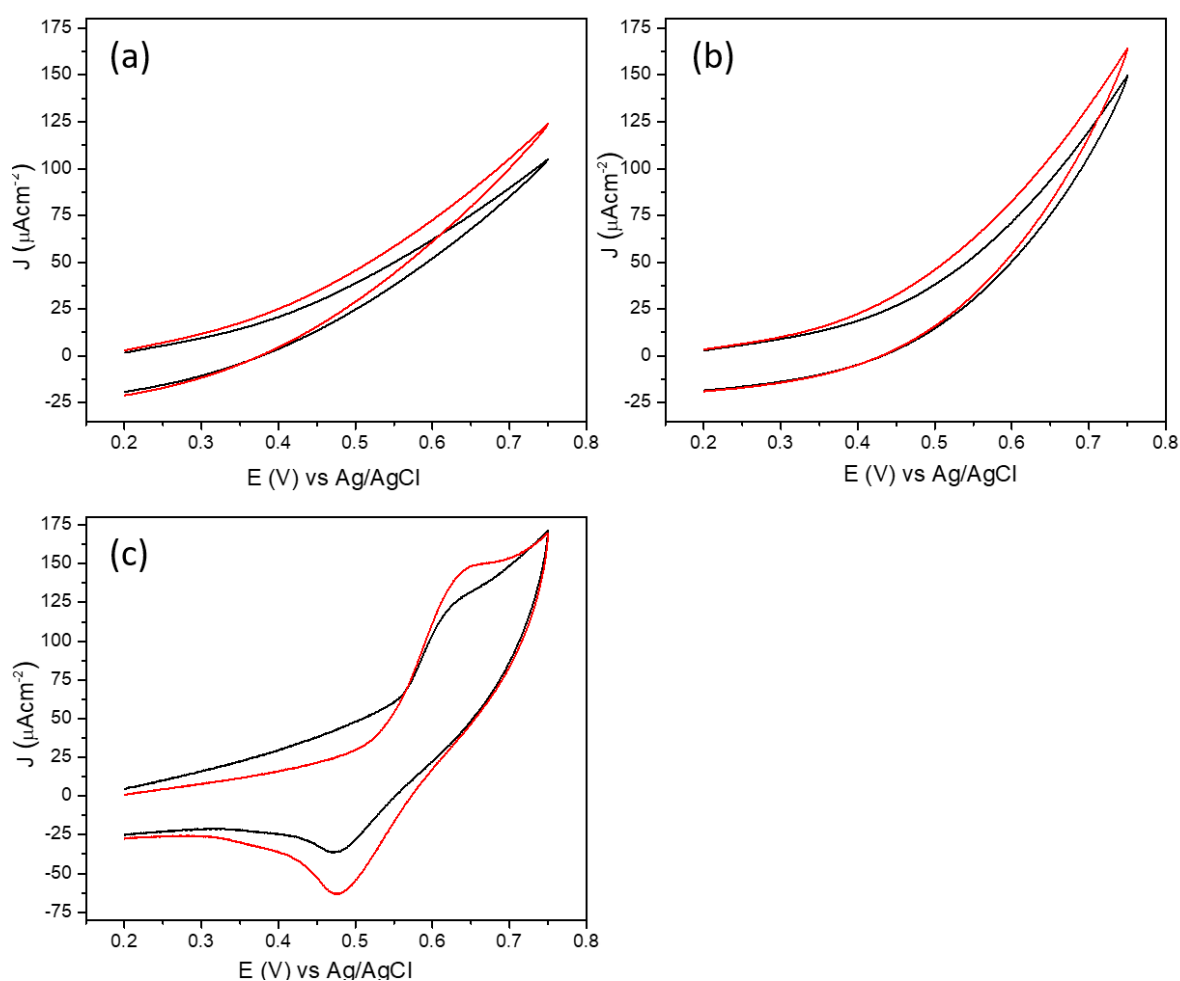


Figure S6. Cyclic voltammetry of GCE/FC/Ni₂P *in situ* modified electrodes in the presence (red lines) and absence of glucose (black lines) in different concentration of NaOH solution (a) pH = 10 (b) pH = 11 and (c) pH = 12. Conditions: additions of 1.00 mM glucose, scan rate= 50.0 mVs⁻¹.

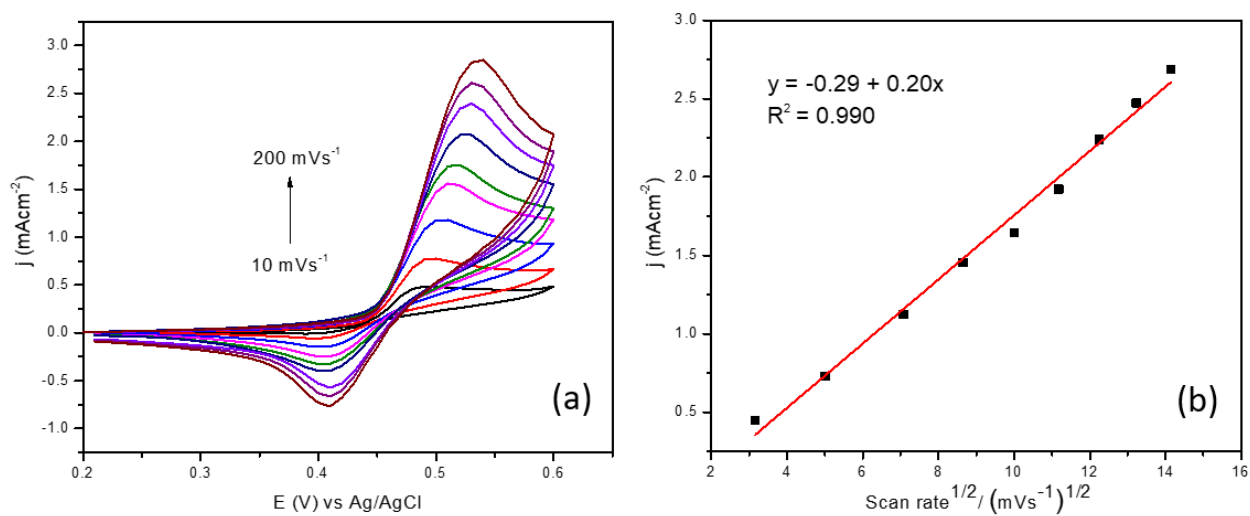


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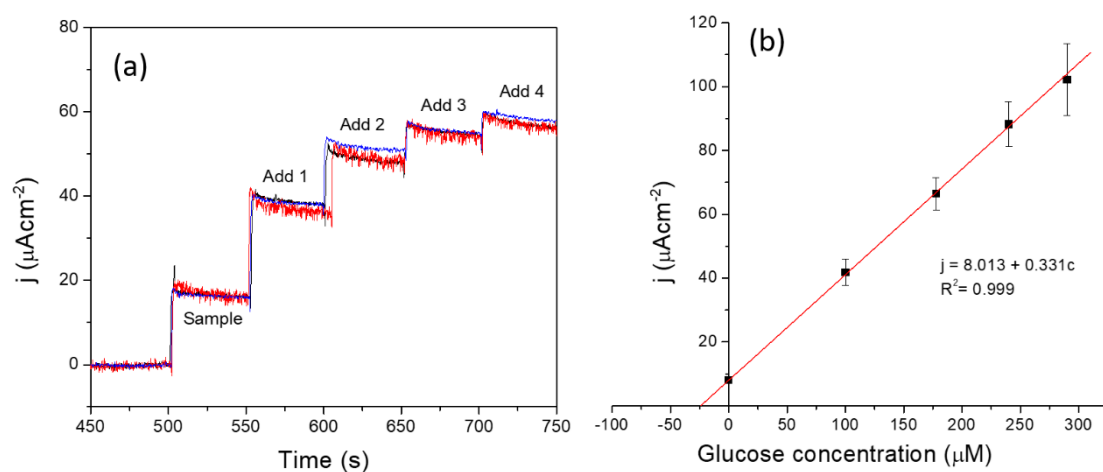


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