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Article

A Zinc Oxide Interconnected Hydroxypropyl-Beta-Cyclodextrin/rGO Nanocomposite as an Electrocatalyst for Melatonin Detection: An Ultra-Sensitive Electrochemical Sensor

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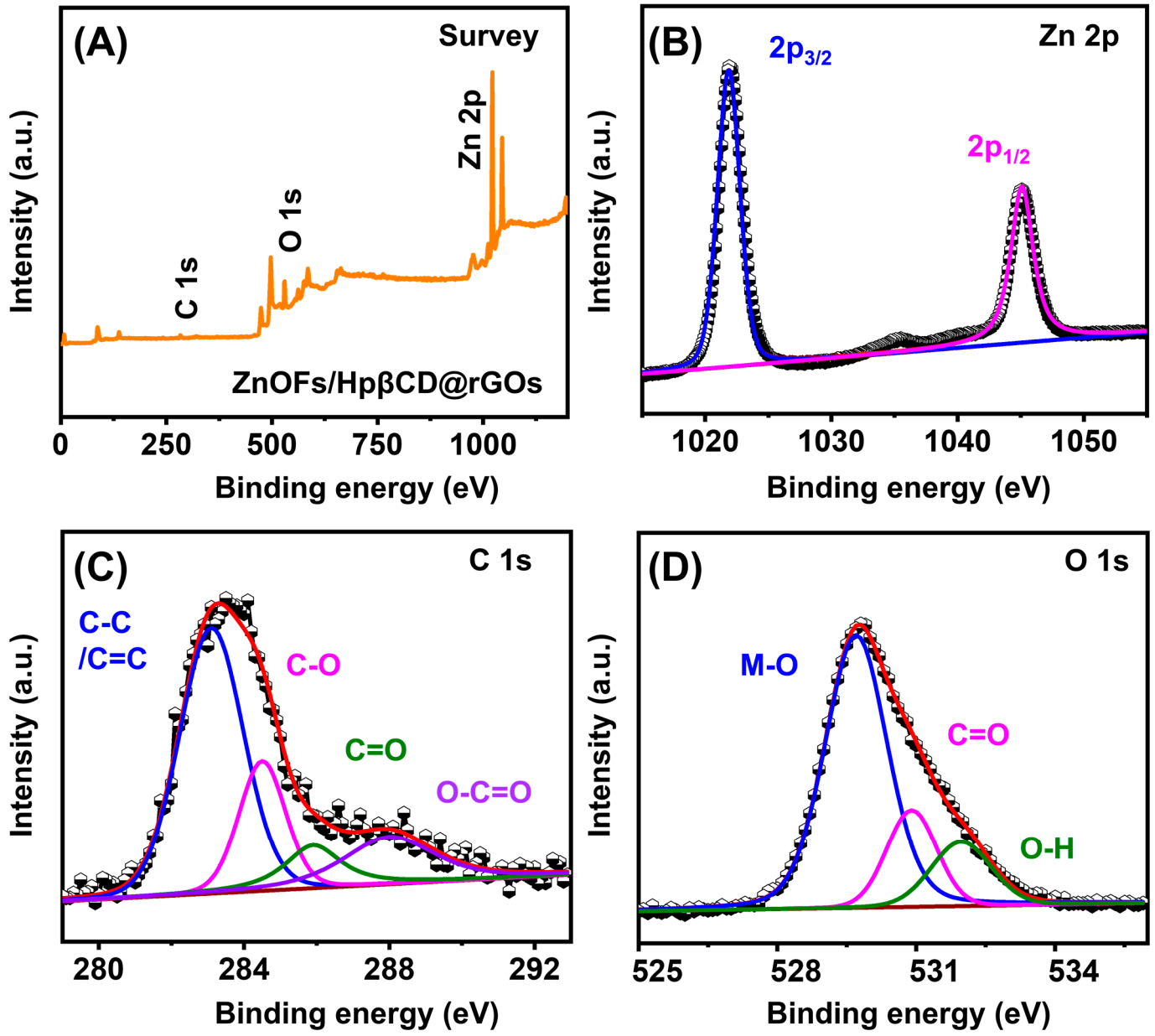

Figure. S1 XPS overall survey scan of ZnOFs/HpβCD@rGOs **(A)**, Zn 2p **(B),** C 1S **(C),** and O 1s **(D).**

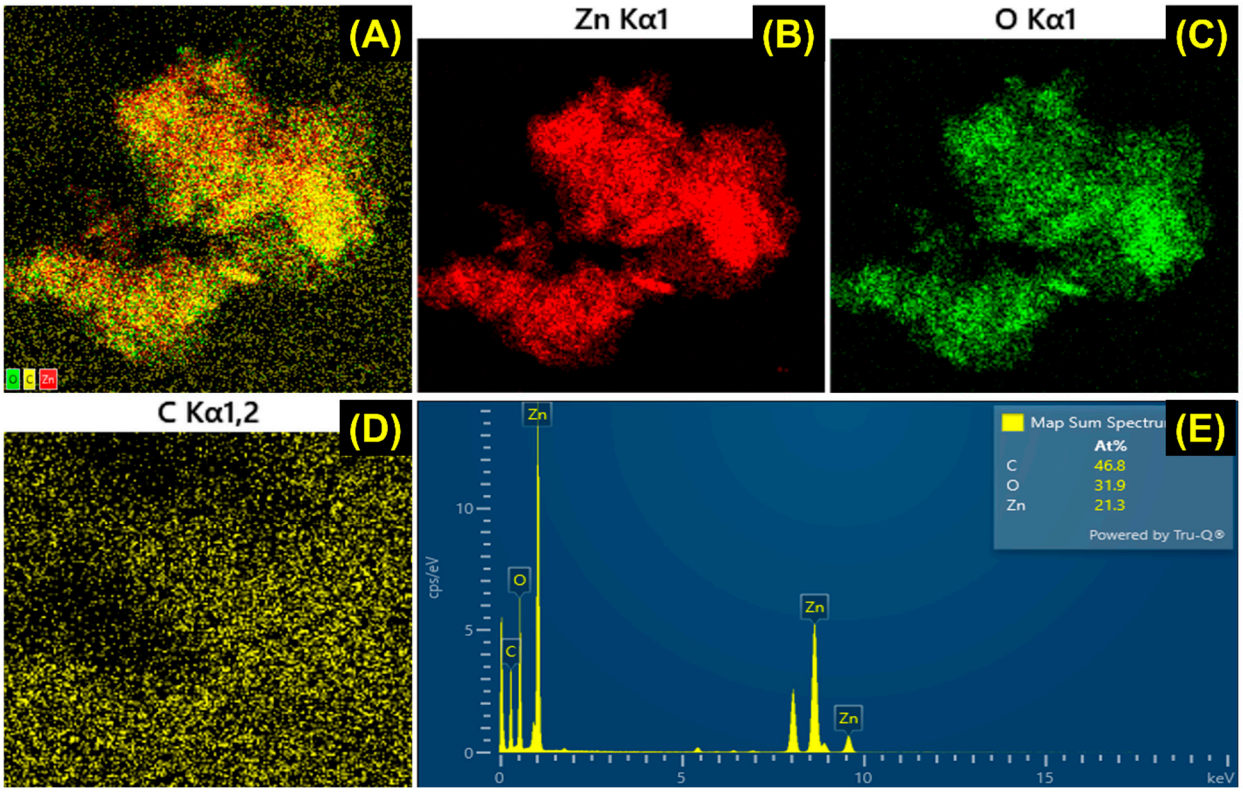

Figure. S2 TEM elemental mapping images of ZnOFs/HpβCD@rGOs **(A-D)**, mix image **(A),** Zn **(B),** O **(C),** C **(D),** and EDAX spectrum of ZnOFs/HpβCD@rGOs **(E).**

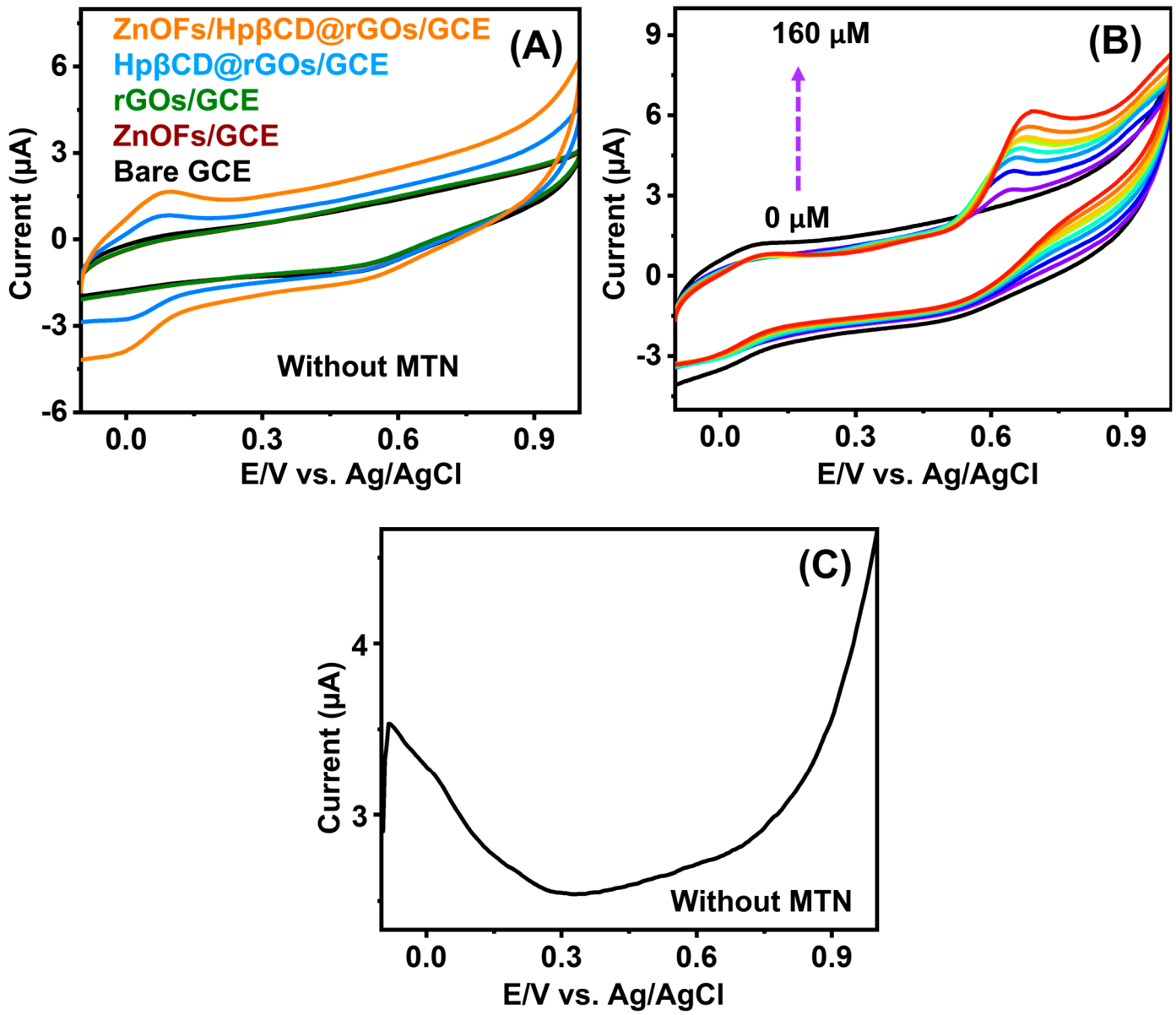

Figure. S3 (A) shows the cyclic voltammetry signals of different electrodes: bare GCE, ZnOFs/GCE, HpβCD@rGOs/GCE, and ZnOFs/HpβCD@rGOs/GCE performed without the concentration of MTN in the presence of a 0.1 M PB solution at a sweep rate of 50 mV/s, **(B)** displays the cyclic voltammetry images of ZnOFs/HpβCD@rGOs/GCE with different doses (ranging from 0 μM to 160 μM) of MTN conducted using 0.1 M PBS and a scan rate of 50 mV/s, and **(C)** DPV curve of ZnOFs/HpβCD@rGOs/GCE without the addition of MTN in a 0.1 M PB solution.

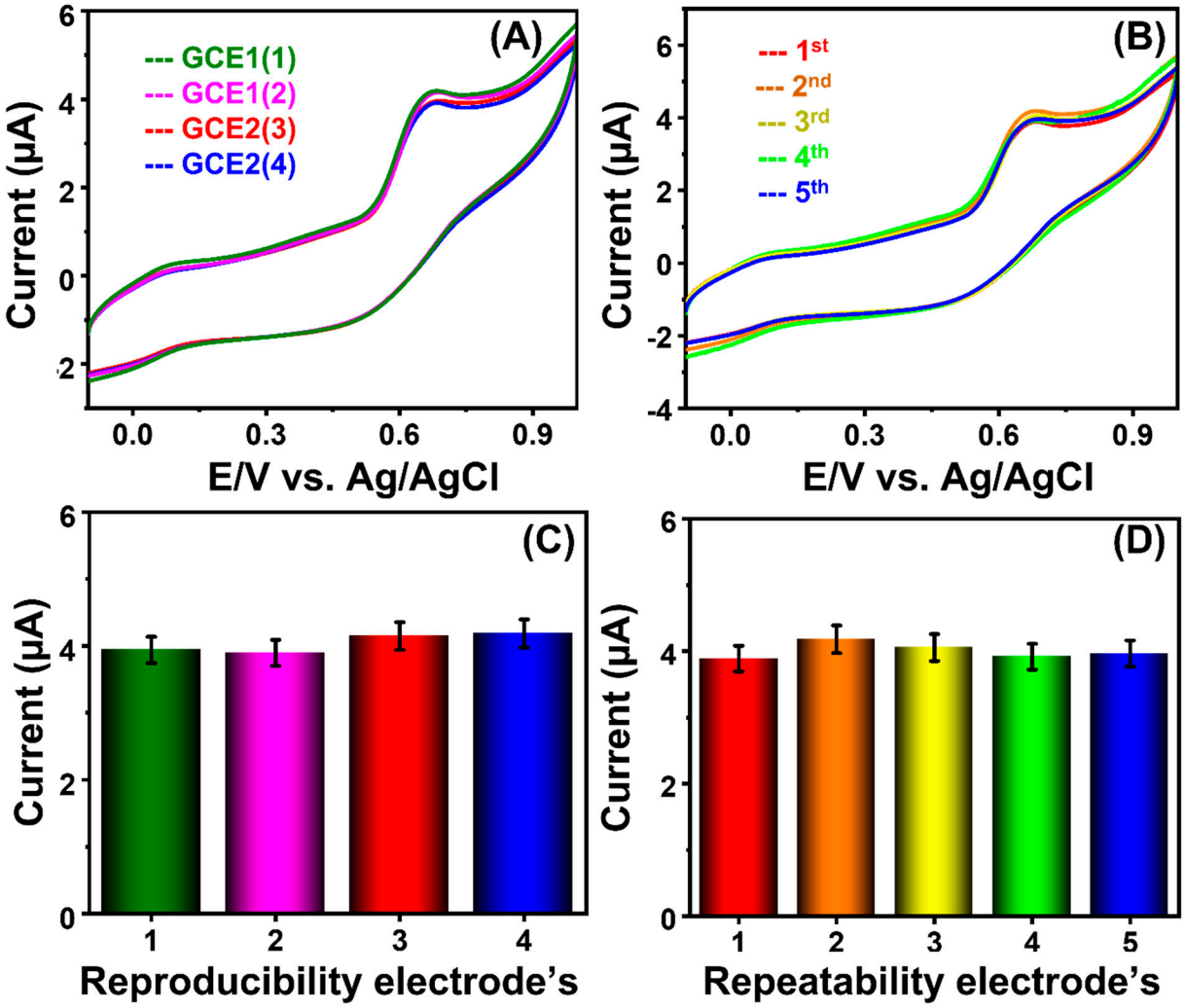

Figure. S4 CV profiles of ZnOFs/HpβCD@rGOs/GCE with 75 µM of MTN **(A)** reproducibility, **(B)** repeatability, and **(C and D)** its corresponding histogram diagrams of reproducibility and repeatability.

Table. S1. Real sample analysis recovery percentage tabulation (n = 3).

Sample	Added (µM)	Detected (µM) ---------- DPV	Detection Rate (%) (Mean ± RSD) (n=3)
Human blood serum-1	0	-	-
	40	39.86	99.65 ± 0.07
	80	79.68	99.60 ± 0.05
	120	119.62	99.68 ± 0.11
Human blood serum-2	0	-	-
	40	39.72	99.30 ± 0.09

	80	79.71	99.63 ± 0.13
	120	119.60	99.66 ± 0.06

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