Supporting Information

Bismuth Tungstate Nanocomposites for Simultaneous Detection of Hydroquinone and Resorcinol

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No of Figures: 2 (Figure S1 and S2)

No of tables: 1 (Table S1)

Instrumentation

Using a Bruker AXS D8 advanced diffractometer with Cu Kα radiation (λ = 1.5406 Å), X-ray diffraction studies was taken at 5° min in the 2θ range 5°− 90°. Utilizing the ThermoNicolect 380's IR method, functional groupings were determined. Raman spectroscopy type STR 500 mm focal length laser Raman spectrometer (SEKI Japan) was used to measure the various vibration modes. The morphological studies and the HAADF color mapping of Bi_2WO_6 were carried in HR-TEM, (TecnaiTM G2TF20) working at an accelerating voltage of 200 kV and the Energy Dispersive X-ray Spectroscopy (EDS) analysis was done with separate EDS detector in the same instrument.The FE-SEM was performed in SUPRA 55VP, Gemini Column with 1.2 nm gold particle separation on a carbon substrate. With air lock system. Photoluminescence study was observed using Varian Cary Eclipse Photo Luminescence spectrometer. The electrochemical measurements like Cyclic Voltammetry (CV), Electrochemical Impedance Spectroscopy (EIS), Square Wave Voltammetry (SWV) were studied by involving a CHI 6005D electrochemical workstation (CH instruments, USA).

Materials and Reagents

All the chemicals used in the synthesis **of** Bi_2WO_6 were procured from Sigma Aldrich. Sodium tungstate (99%), bismuth nitrate pentahydrate (98%),sodium dihydrogen phosphate, disodium hydrogen phosphate, hydrochloric acid (HCl, 30%),hydroquinone (HQ), resorcinol (RS), catechol (CC), ferric chloride (Fe), potassium chloride (K), ascorbic acid (AA) and magnesium (Mg) were purchased from Sigma-Aldrich Co Ltd in Bangalore (India) of an analytical grade and used without further purification. Deionized (DI) water was used as a solvent throughout the experiment and all the measurements were carried out in Phosphate Buffer Solution (PBS) as a supporting electrolyte. In order to make PBS, sodium dihydrogen phosphate and disodium hydrogen phosphate were mixed together and the pH was subsequently altered with HCl and NaOH. Three electrode systems, namely a glassy carbon

electrode (GCE) as the working electrode, silver/silver chloride (Ag/AgCl) as the reference electrode, and platinum (Pt) wire as the counter electrode, were used to carry out the electrochemical portion.

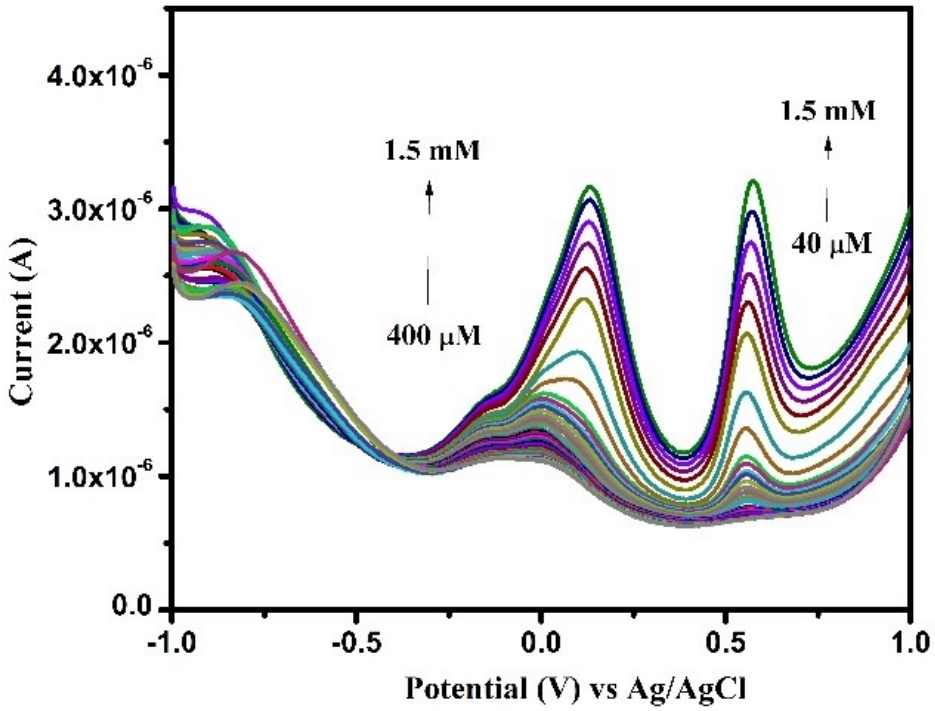

Figure S1. *SWV of the bare GCE for simultaneous detection of HQ and RS.*

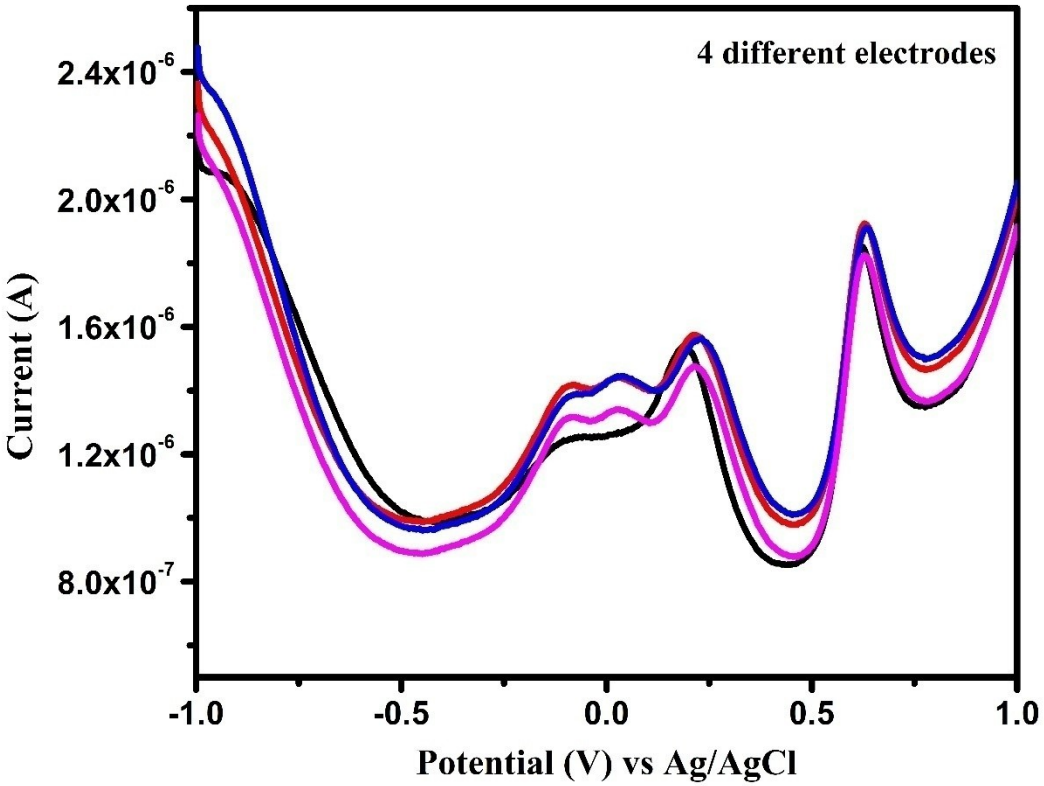

Figure S2. *Reproducibility study with for different electrodes.*

Table S1: Comparison study with previous works.

S. No	Method	Electrode	Linear range(µM)		Limit of detection (µM)		Reference
			HQ	RS	HQ	RS	
1.	Electrochemical sensor	ZIF-8/CNF	2-400		0.06	0.32	[1]
2.		CoFe2Se4/PCF/GCE	0.5-200	5-350	0.13	1.36	[2]
3.		HMCCSs/GCE	0.3~1000	3~600	0.12	1.1	[3]
4.		N-NiCSs/GCE	0.005-100	5-500	0.00152	0.24	[4]
5.		P-rGO-GCE	5–90	5–90	0.08	2.62	[5]
6.		CA-GCE	1–300	5–200	0.46	0.47	[6]
7.		Bi_2WO_6	200 – 5000	20 – 5000	57	4.3	**This work**

References

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