
Supporting Information

An Enzyme-Free Photoelectrochemical Sensor Platform for Ascorbic Acid Detection in Human Urine

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1.1 Surface morphology analysis for Dy-OSCN

Table S1. High resolution projected electron microscope electron energy spectrum (HRTEM-EDS) element total distribution table of Dy-OSCN/FTO photoelectric detection electrode calcined at 400 °C.

Element	Line system	Absorption correction	wt%	wt% Sigma
C	K	1.00	31.57	0.50
N	K	1.00	2.84	0.46
O	K	1.00	16.17	0.35
S	K	1.00	3.77	0.14
Dy	L	1.00	45.66	0.53
Total:			100.00	

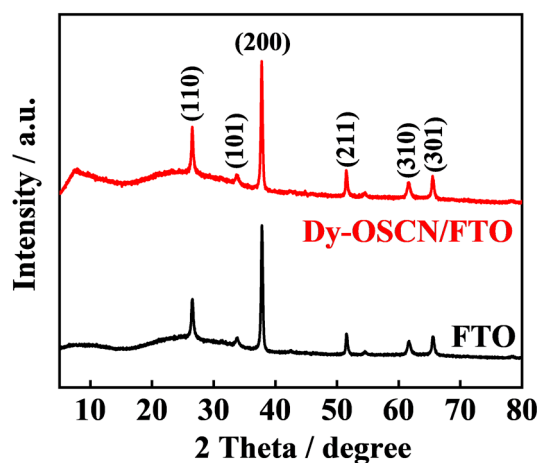


Figure S1. X-ray diffraction (XRD) images of Dy-OSCN/FTO and FTO electrode.

1.2 The results of conditions optimization

Table S2. Optimized conditions of the calcination temperature of Dy-OSCN /FTO electrode.

R ²	420nm	465nm	535nm	630nm
300°C	0.91564	0.87329	0.93342	0.97136
400°C	0.90823	0.98945	0.96401	0.97667

500°C	0.8246	0.82379	0.81139	0.89459
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Table S3. Optimized conditions of the excitation wavelength of Dy-OSCN /FTO electrode.

Added 20μM	420nm	465nm	535nm	630nm
300°C	-0.0015	-0.0015	-0.0034	-0.0108
400°C	-0.0061	-0.0157	-0.0052	-0.00799
500°C	0.00123	8.30E-04	7.50E-04	-0.0018

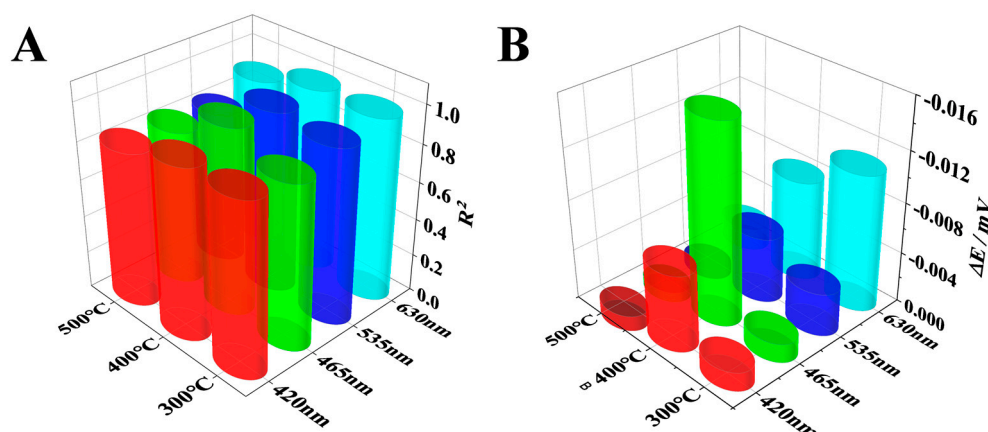


Figure S2. (A) Linear (R^2) comparison and (B) low concentration signal intensity of AA tests with Dy-OSCN/FTO electrodes at calcination temperatures of 300 °C, 400 °C and 500 °C under 10 W LED light excitation at 630 nm, 535 nm, 465 nm and 420 nm.

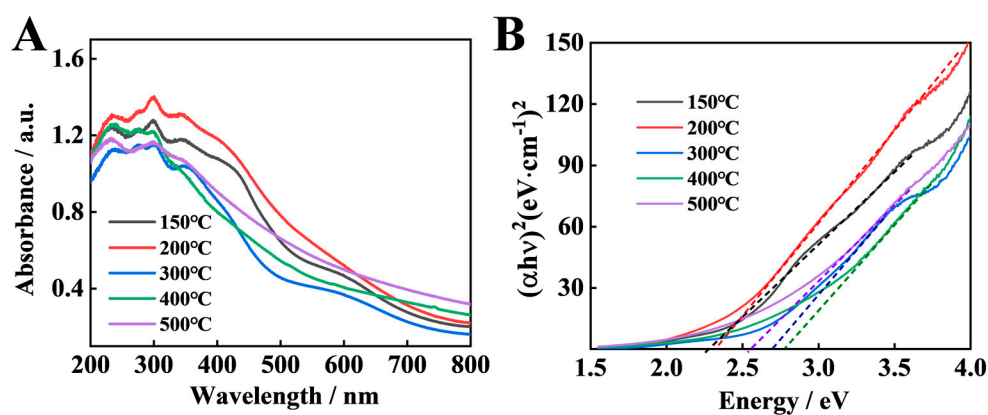


Figure S3. (A) UV diffuse reflectometry of Dy-OSCN/FTO electrode at calcination

temperatures of 150 °C, 200 °C, 300 °C, 400 °C and 500 °C; (B) Kubelka-Munk curves of Dy-OSCN/FTO photoelectric detection electrodes at calcination temperatures of 150 °C, 200 °C, 300 °C, 400 °C and 500 °C.

1.3 The performance of the Dy-OSCN PEC sensor

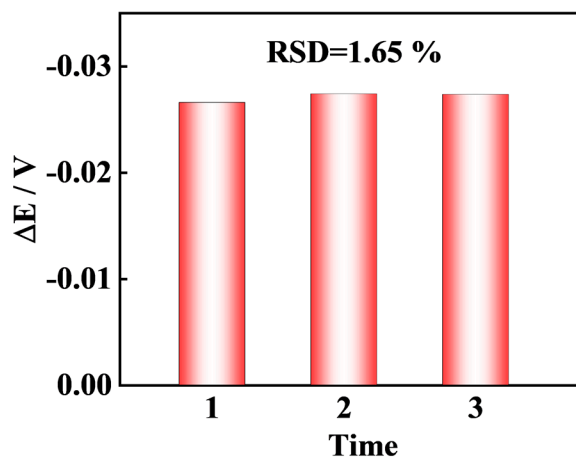


Figure S4. Parallel line test diagram of the same Dy-OSCN/FTO electrode for AA determination.

1.4 The structural of $[Dy_3(\mu_3-O)_2(\mu_2-O)_3]$

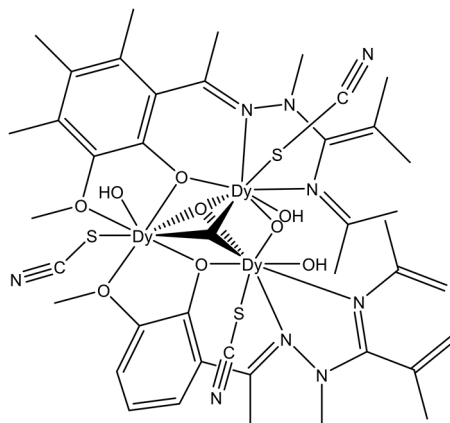


Figure S5. The structural of $[Dy_3(\mu_3-O)_2(\mu_2-O)_3]$

1.5 The thermal analysis data of the as-prepared complex

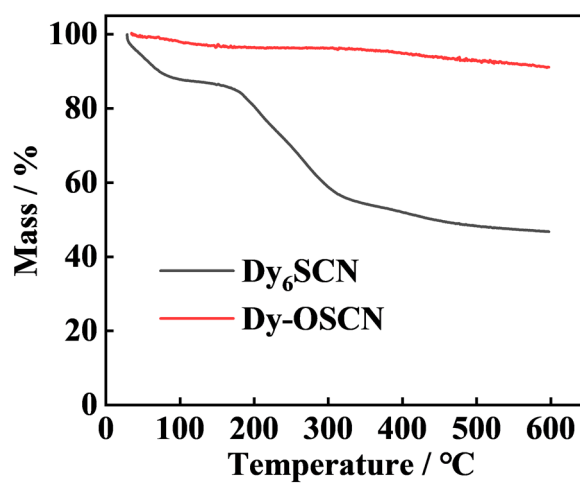


Figure S6. Thermogravimetric Analysis of Dy_6SCN and Dy-OSCN

1.6 The thickness of the active layer on the surface of the electrode

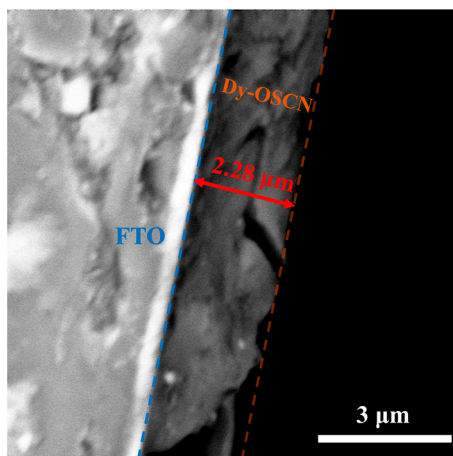


Figure S7. The thickness of the active layer on the surface of the electrode