Spinel $Zn_3V_3O_8$ nanosheets via one - step hydrothermal synthesis with peroxidase-like activity for high-sensitive glucose colorimetric detection in synthetic perspiration

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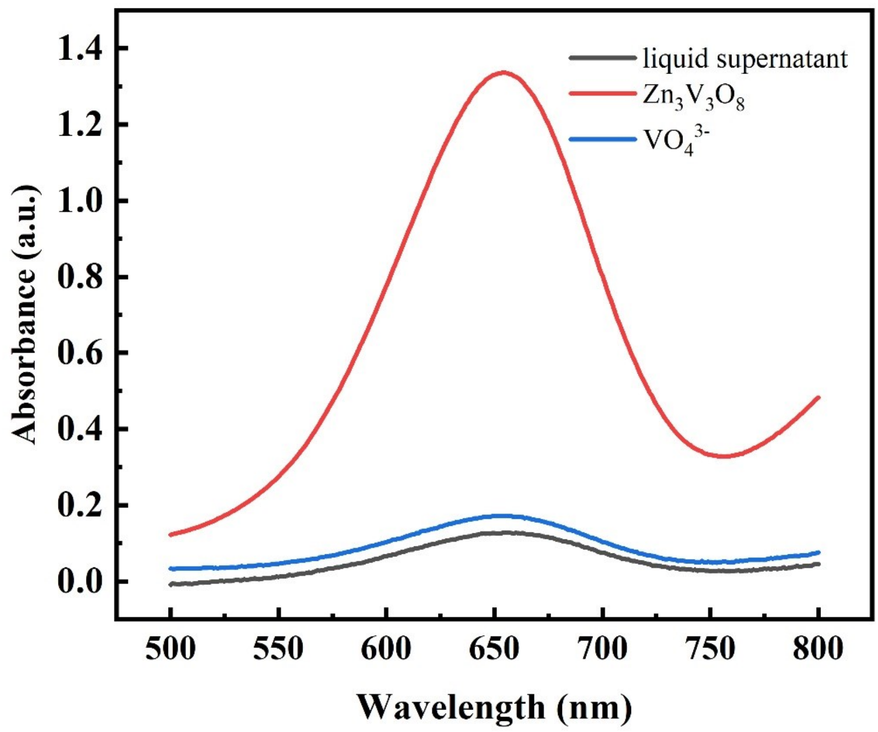


Fig. S1 UV–vis absorption spectra of different reaction systems in H_2O, $Zn_3V_3O_8$+ H_2O_2+TMB (red line), $Zn_3V_3O_8$ liquid supernatant+ H_2O_2+ TMB (blue line) and ${VO^{3-}}_4$ + H_2O_2+ TMB (black line).

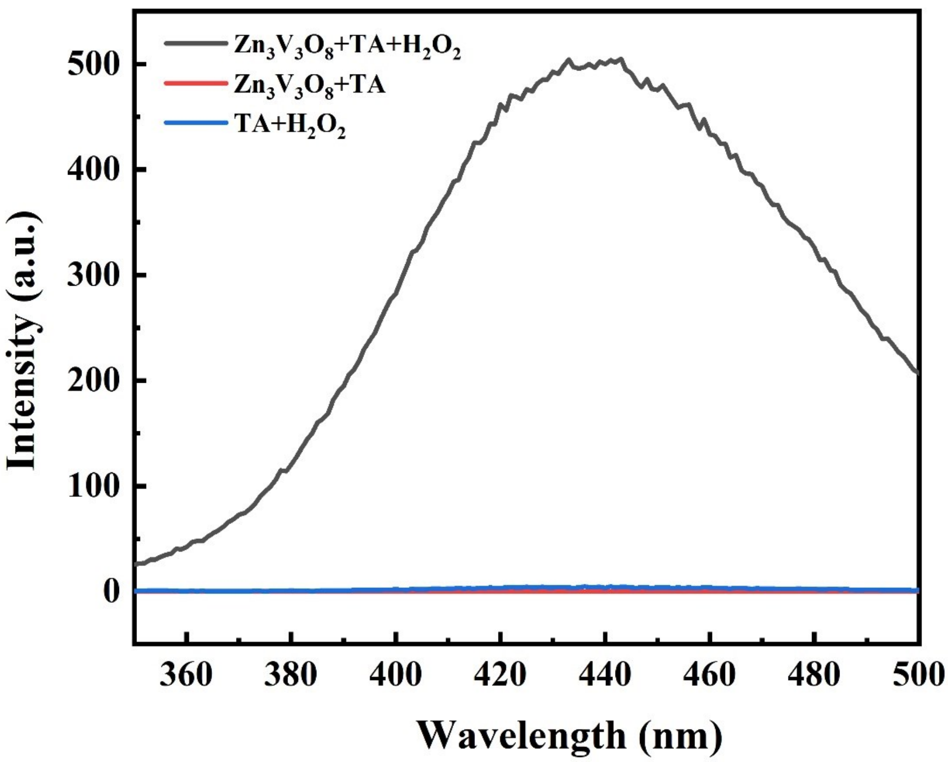


Fig. S2 The fluorescence intensity of the H_2O_2+ $Zn_3V_3O_8$ NSs system generated hydroxyl radicals captured by p-Phthalic acid (PTA).

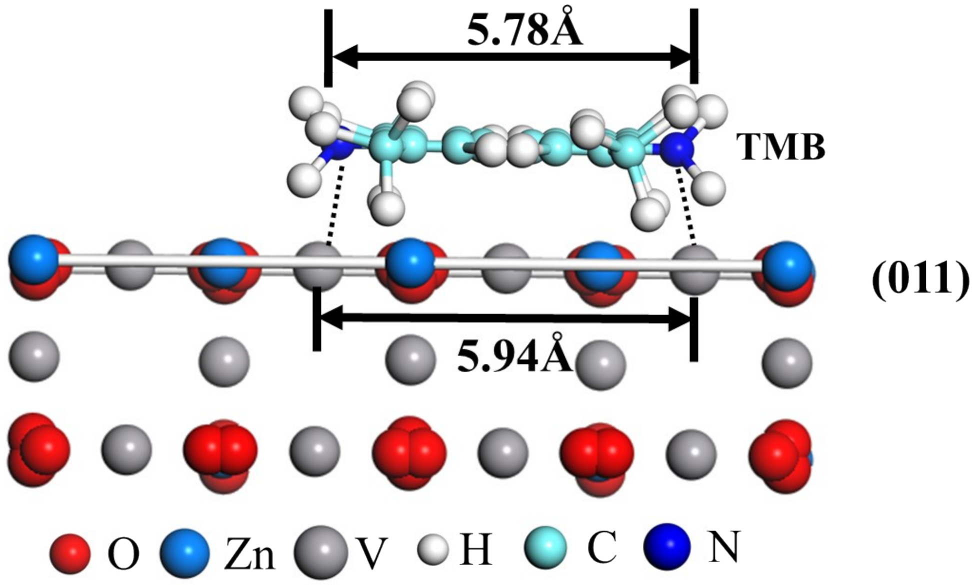
Table S1 Comparison of kinetic parameters for peroxidase-like nanomaterials and horseradish peroxidase (HRP)

Catalyst	Substrate	K_m (mM)	V_{max} (10^{-8} M s^{-1})	References
HRP	TMB	0.434	10	1
	H_2O_2	3.7	8.71	
VO_2(B)	TMB	0.146	131	2
	H_2O_2	1.69	177	
V_6O_{13}	TMB	0.153	2.99	3
	H_2O_2	1.51	3.12	
$Zn_3V_3O_8$ NSs	TMB	0.271	9.196	This work
	H_2O_2	1.317	1.2	

Table S2 Comparative table of colorimetric detection for glucose

Sensing probe	Linear range (μM)	Detection limit (M)	Reference
Fe SSN	10–100	8.20×10^{-6}	4
Fe-MOF-GOx	1–500	0.487×10^{-6}	5
Pt/ cube-CeO_2	10-100	4.10×10^{-6}	6
Cu-Ag/rGO	1-30	3.82×10^{-6}	7
SGO_x-NFs	Up to 100	3.5×10^{-6}	8
PEG-MNPs	5 -1000	3×10^{-6}	9
m-CeO_2	20-1000	1×10^{-5}	10
$Zn_3V_3O_8$ NSs	10-500	2.81×10^{-7}	This work

Scheme S1



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