Supplementary information for

Synthesis of Os@ZIF-8 nanocomposites with enhanced peroxidase-like activity for detection of Hg^{2+}

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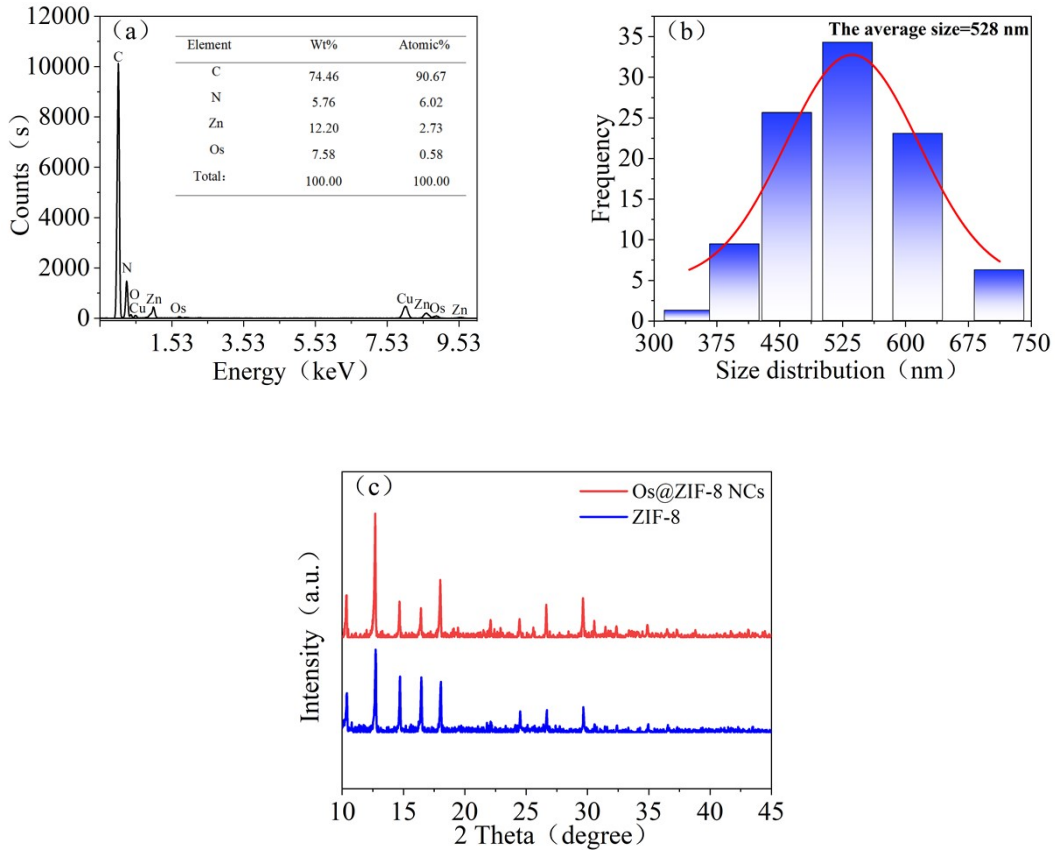

Fig. S1 (a) EDS spectra of Os@ZIF-8 NCs, (b) size distribution of Os@ZIF-8 NCs, (c) XRD measurement of ZIF-8 and Os@ZIF-8 NCs.

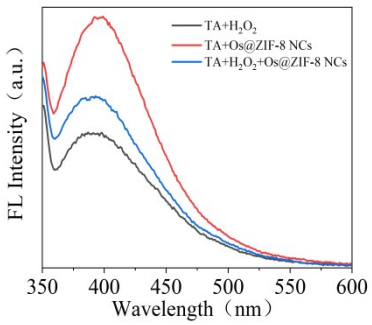

Fig. S2 Fluorescence spectra of reaction solutions for oxidation of TA excitated at 310nm.

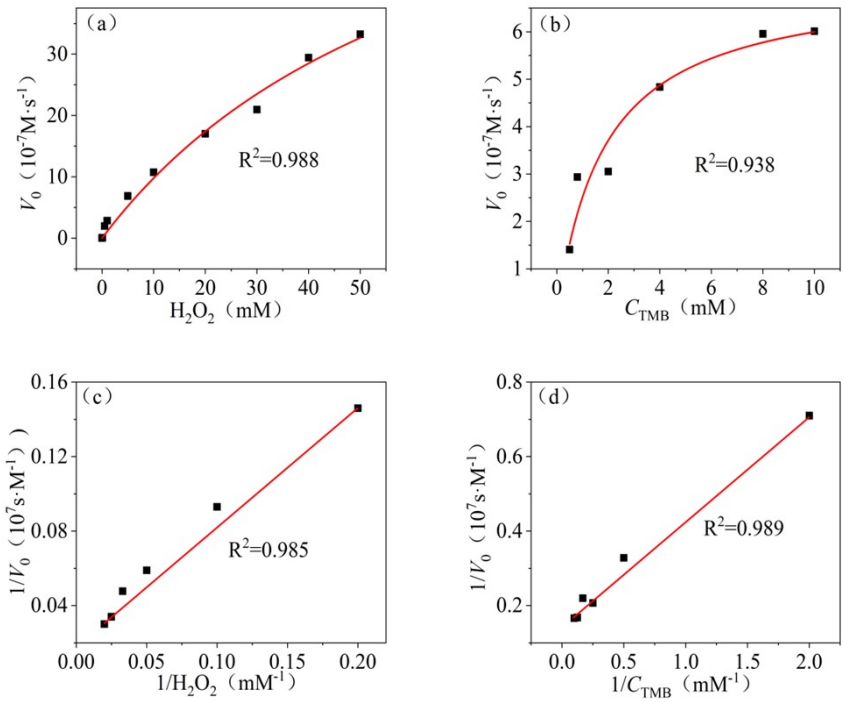

Fig. S3 Steady-state kinetic analysis with pure Os NPs, Michaelis-Menton trend of (a) H_2O_2 and (b) TMB, Lineweaver-Burk double reciprocal of (c) H_2O_2 and (d) TMB.

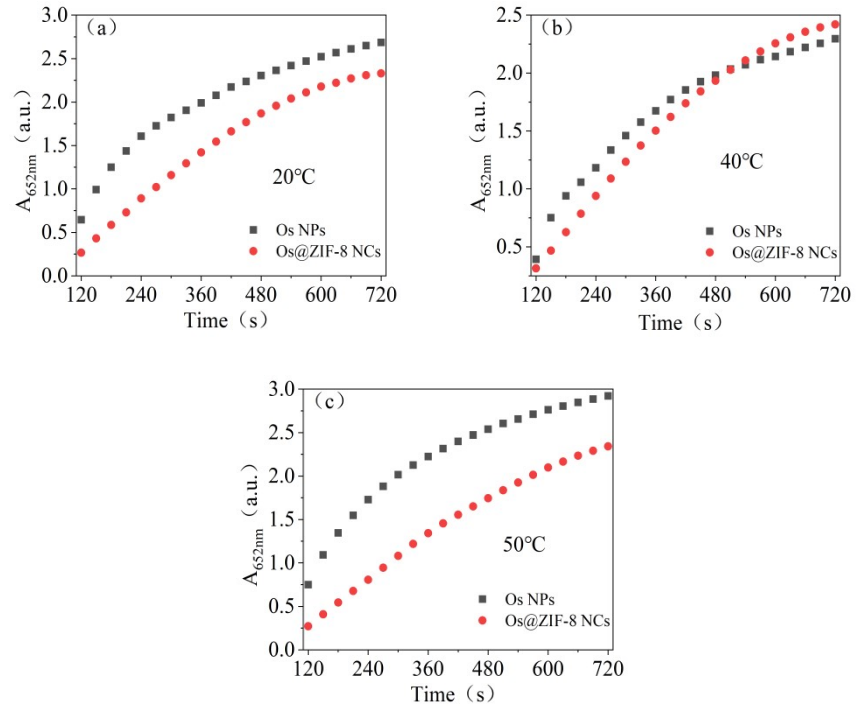

Fig. S4 Changes in absorption values over time at different temperatures (a) 20℃, (b) 40℃ and (c) 50℃.

Table S1 The average reaction rate constant (k) for both catalyst at three temperature.

Catalyst	Temperature(℃)	k(s^{-1})
Os NPs	20	0.00439
	40	0.00431
	50	0.00492
Os@ZIF-8 NCs	20	0.00517
	40	0.00494
	50	0.00507

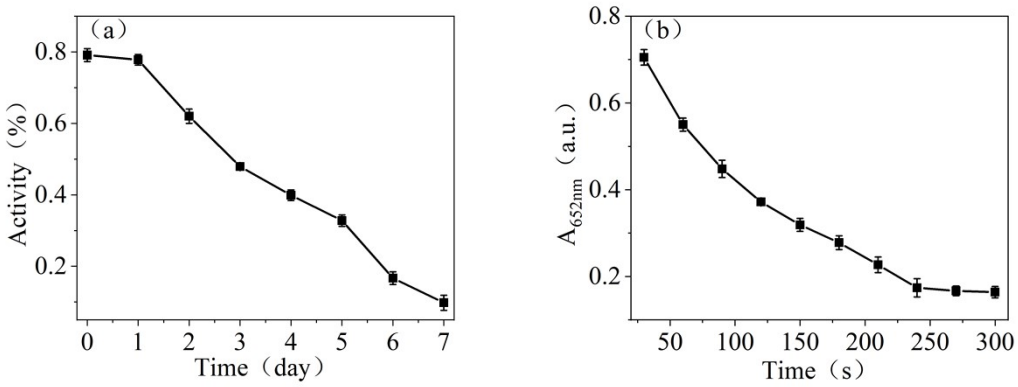

Fig. S5 (a) Changes in Os@ZIF-8 NCs activity with storage days, (b) the response time of the nanocomposite for Hg^{2+} detection.

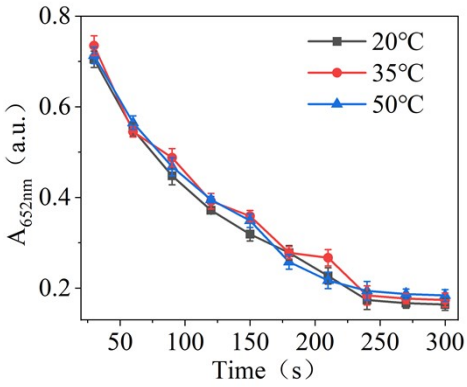

Fig. S6 The effect of temperature on the Hg^{2+} detection.