Electronic Supplementary Material (ESI) for Journal of Materials Chemistry B.

Supporting Information

Carbon-mediated synthesis of shape-controllable manganese phosphate as Nanozyme for modulation of superoxide anions in Hela cells

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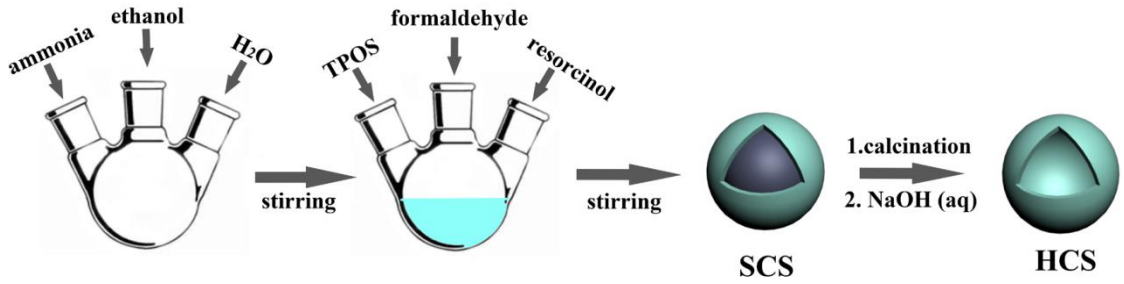

Figure S1. The synthesis process of hollow carbon sphere (HCS)

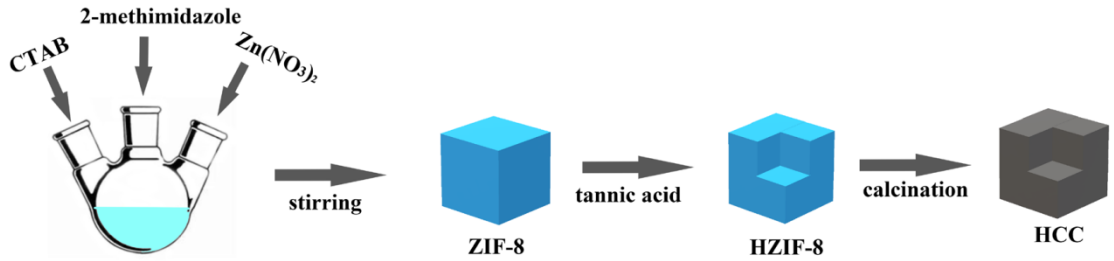

Figure S2. The synthesis process of hollow carbon cubic (HCC)

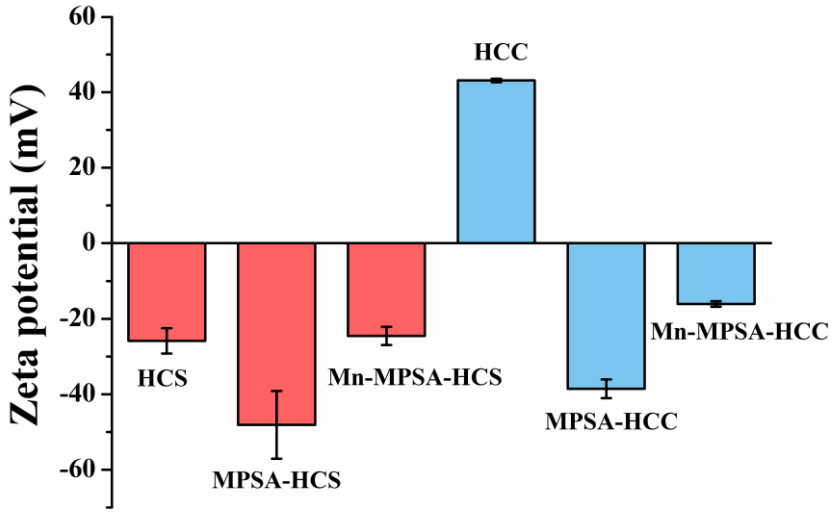

Figure S3. The variation of zeta potential during the synthesis process of Mn-MPSA-HCS and Mn-MPSA-HCC.

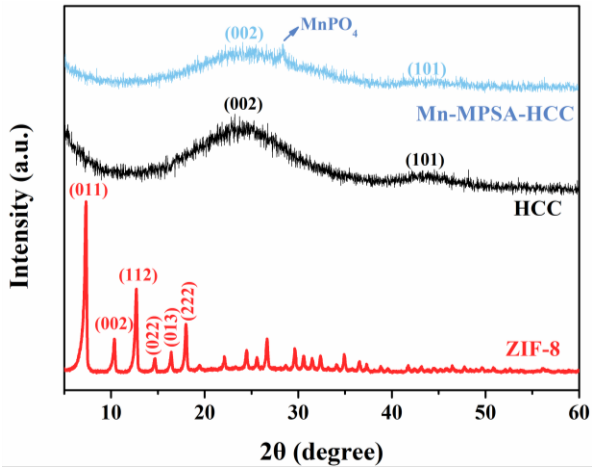

Figure S4. The XRD characterization of ZIF-8 and HCC

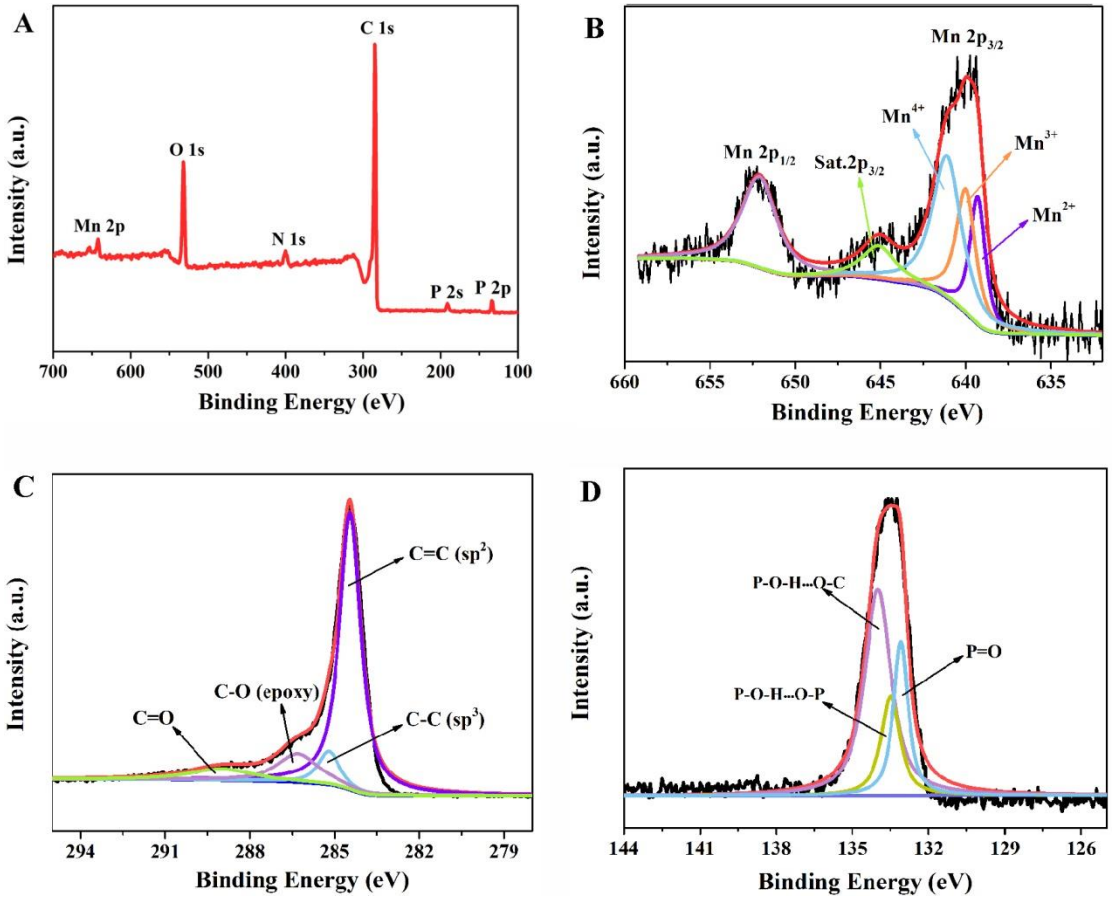

Figure S5. The **(A)** XPS wide range survey and **(B)** high-resolution Mn 2p spectrum of Mn-MPSA-HCS; the high resolution **(C)** C 1s and **(D)** P 2p of Mn-MPSA-HCC

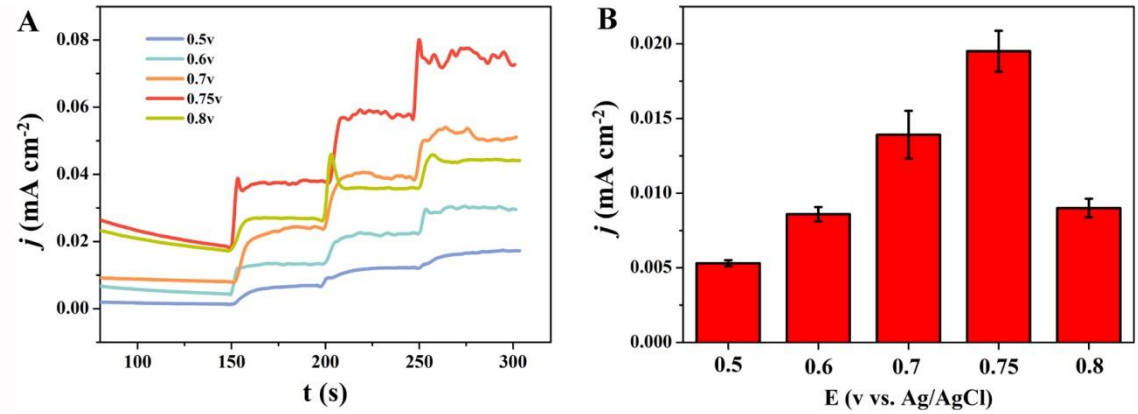

Figure S6. The optimization of applied potential of Mn-MPSA-HCS/SPCE in 0.1 M PBS (pH 7.4) at the addition of 0.16 mM superoxide anions at each step

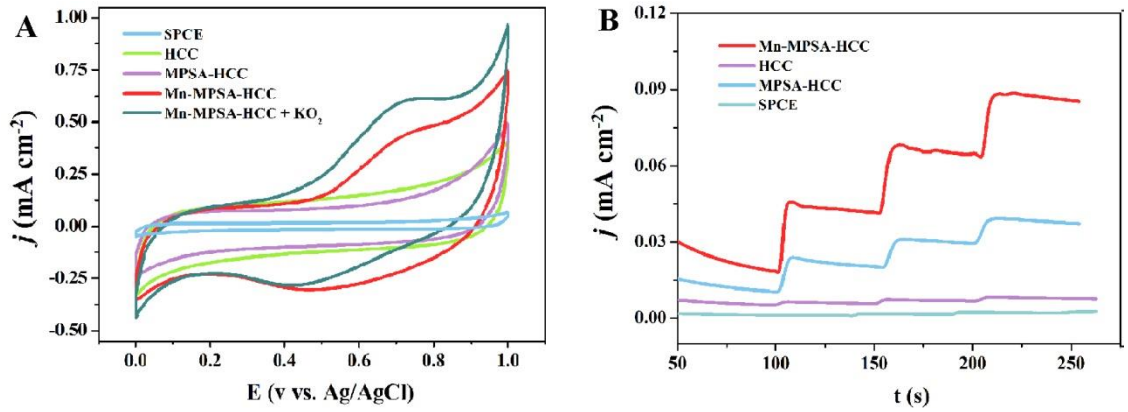

Figure S7. The **(A)** CV curves and **(B)** current responses of SPCE, HCS/SPCE, MPSA-HCS/SPCE and Mn-MPSA-HCS/SPCE

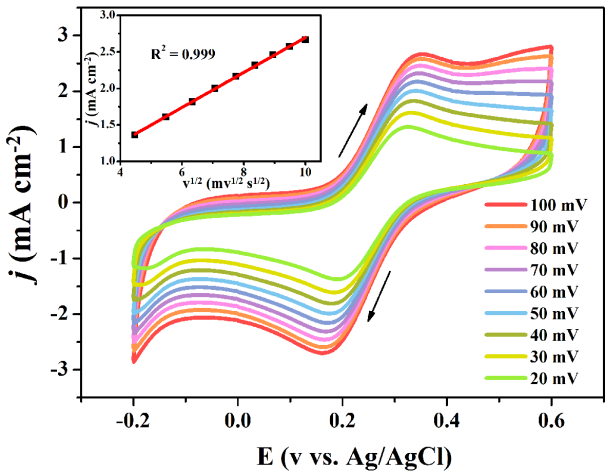

Figure S8. The CV curves of Mn-MPSA-HCS/SPCE in 5 M $K_3[Fe(CN)_6]$/ $K_4[Fe(CN)_6]$ (contains 0.1 M KCl) at different scan rates

Materials	Applied potential (V)	Sensitivity (μA cm^{-2} $μM^{-1}$)	Linear range (μM)	Limit of detection (μM)	Ref.
Mn-MPSA-MWCNTs /SPCE	0.7	77.5	0-1817	0.127	[1]
SOD/PdNPs/C_{TTF}/SPCEs	0.2	—	—	2.0 ±0.2	[2]
GNP/Cu-Cys	0.25	18	3.1-326	2.8	[3]
Gelatin-ZnO-SOD	—	—	—	1.64	[4]
Naringin-Cu	0.123	—	0.2-2.8	0.7	[5]
SOD/PMMA/PANI-Au	0.3	42.5	0.5-2.4	—	[6]
Mn-MPSA-HCS /SPCE	**0.75**	**224**	**0-1257.4**	**0.00125**	**This work**

Table S1. The analytical performance of various electrodes in previous researches for $O_2^{\bullet-}$ sensing.

References

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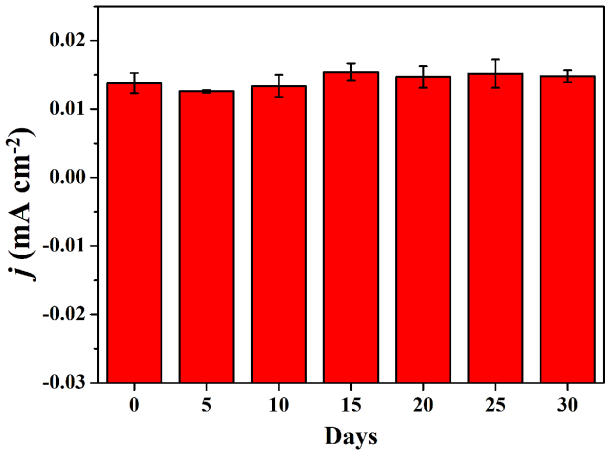

Figure S9. The current responses of Mn-MPSA-HCS/SPCE toward 0.16 mM $O_2^{\bullet-}$ in a month of period