

1 **Supplementary Files**

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3 **Utilization of Fe doped g-C₃N₄ in heterogeneous photo-Fenton-like**
4 **catalytic system: different parameters effect and system mechanism**
5 **investigation**

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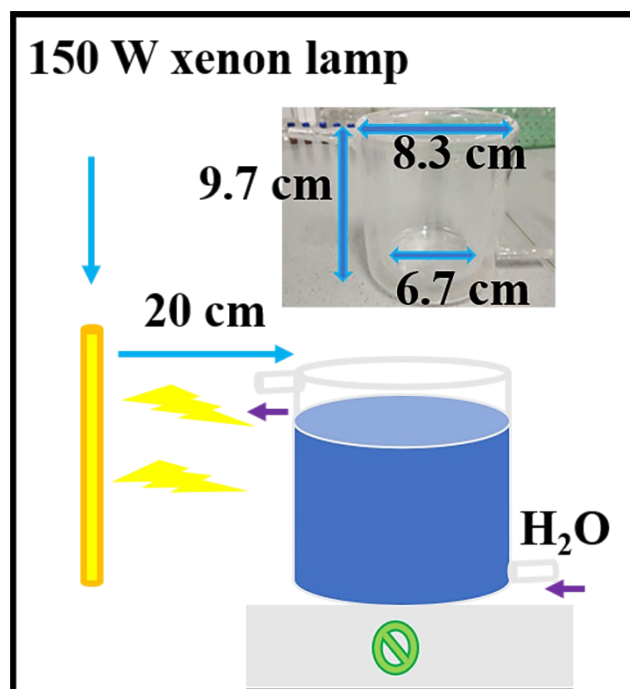
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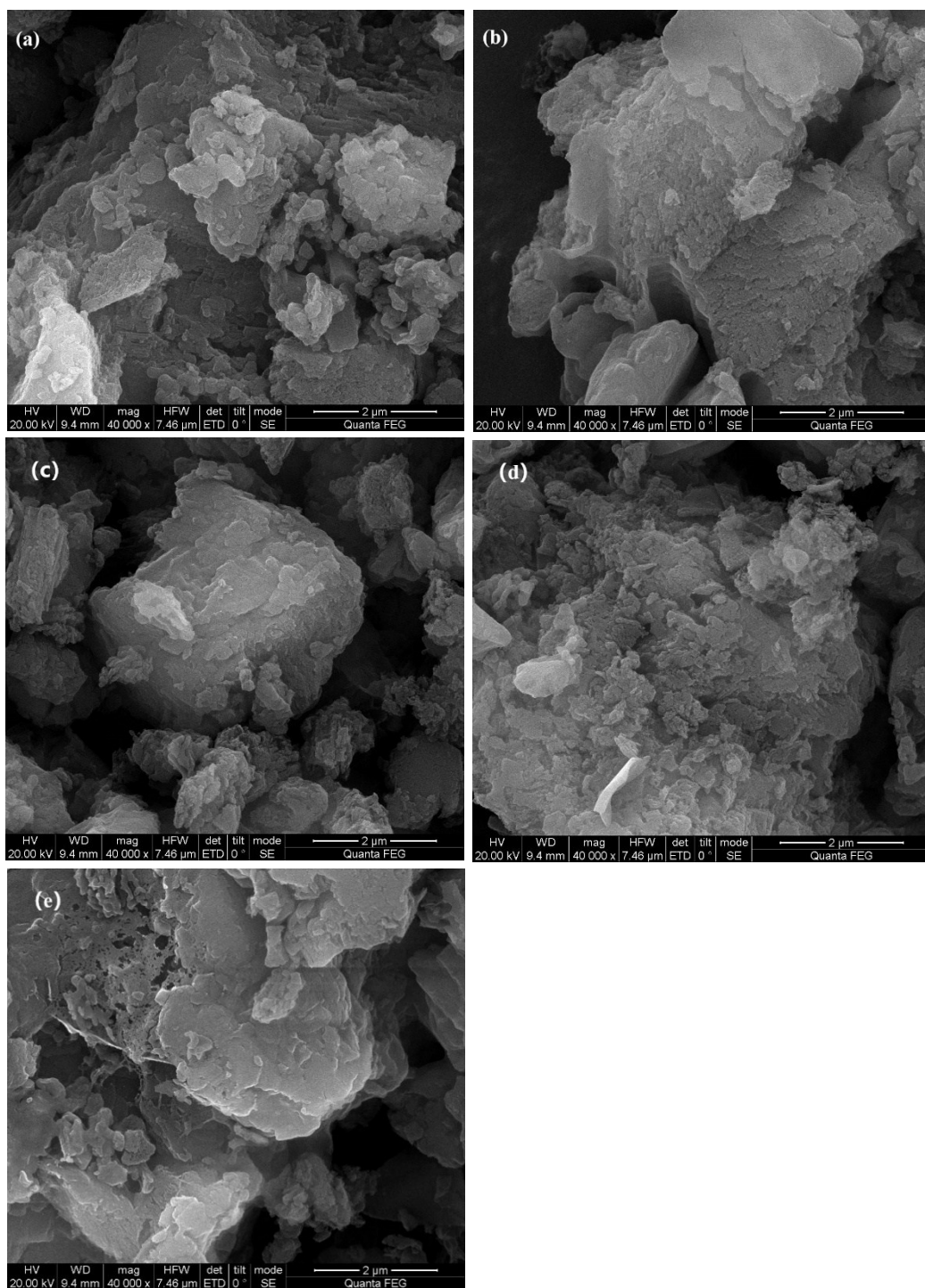
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Fig. S1 Schematic diagram of photocatalytic reactor



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35 Fig. S2. SEM images of g-C₃N₄ (a), 0.5 wt% Fe-C₃N₄ (b), 1 wt% Fe-C₃N₄ (c), 2 wt% Fe-C₃N₄ (d) and 5
 36 wt% Fe-C₃N₄ (e).

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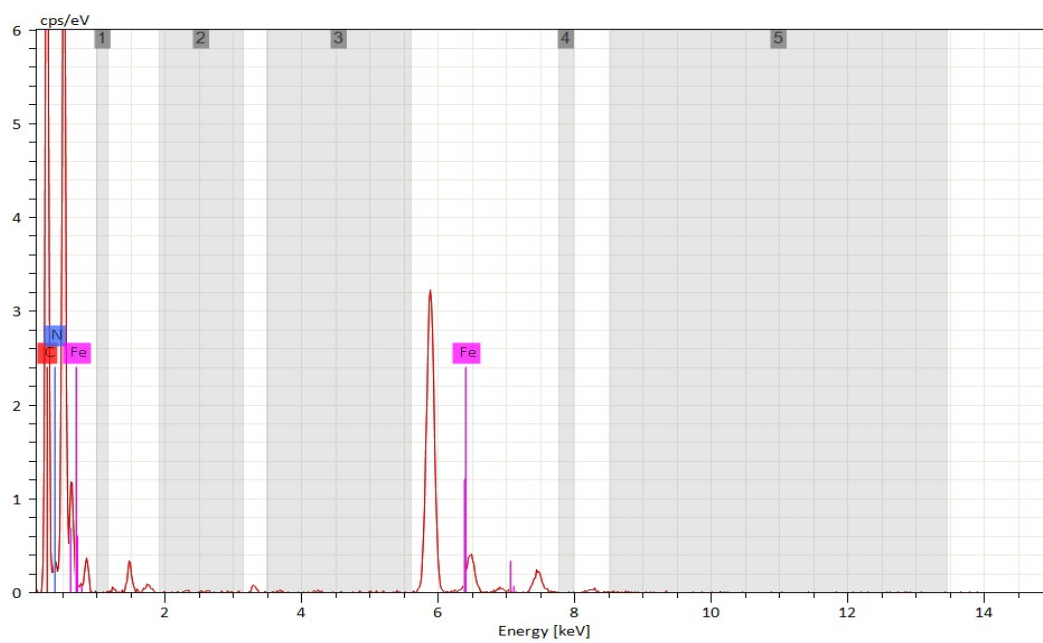
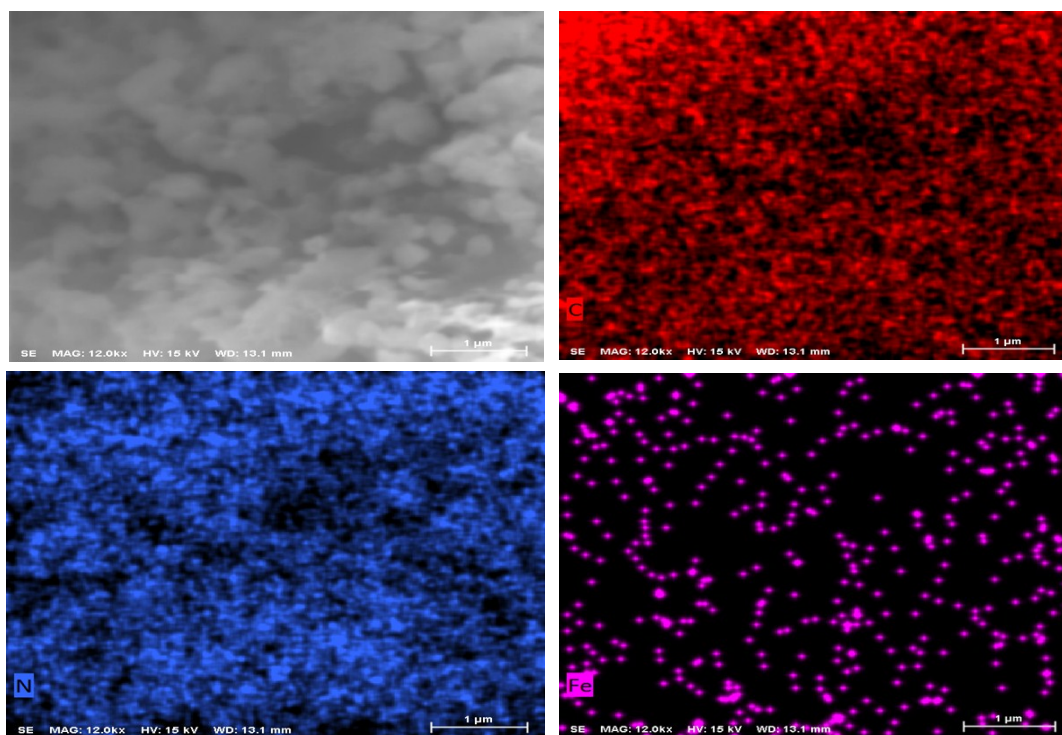
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Element	At. No.	Netto	Mass [%]	Mass Norm. [%]	Atom [%]	abs. error [%] (1 sigma)	rel. error [%] (1 sigma)
Carbon	6	24745	69.58	69.58	76.82	8.75	12.58
Nitrogen	7	1077	22.49	22.49	21.30	5.02	22.30
Iron	26	1575	7.93	7.93	1.88	0.35	4.45
		Sum	100.00	100.00	100.00		

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Fig. S3. The SEM-EDS mapping images of 5% Fe-C₃N₄

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Table.S1. The rate constant of MB in different inorganic anions condition.

Inorganic anions	Concentration (mM)	K (min ⁻¹)	R ²
Cl ⁻	0	0.0303	0.9929
	10	0.0260	0.9948
	20	0.0238	0.9732
	50	0.0174	0.9980
	100	0.0187	0.9903
HCO ₃ ⁻	0	0.0303	0.9929
	10	0.0253	0.9869
	20	0.0299	0.9893
	50	0.0405	0.9797
	100	0.0372	0.9907
NO ₃ ⁻	0	0.0303	0.9929
	10	0.0216	0.9967
	20	0.0195	0.9976
	50	0.0245	0.9952
	100	0.0198	0.9921

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Table.S2. The rate constant of MB in different inorganic cations condition.

Inorganic cations	Concentration (mM)	K (min ⁻¹)	R ²
Al ³⁺	0	0.0303	0.9929
	5	0.0180	0.9958
	10	0.0147	0.9900
	20	0.0136	0.9875
	30	0.0105	0.9619
	0	0.0303	0.9929
Mg ²⁺	5	0.0270	0.9993
	10	0.0232	0.9998
	20	0.0224	0.9985
	30	0.0218	0.9989
	0	0.0303	0.9929
Ca ²⁺	5	0.0236	0.9997
	10	0.0213	0.9985
	20	0.0201	0.9898
	30	0.0191	0.9936
	0	0.0303	0.9929

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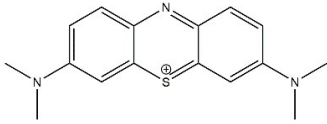
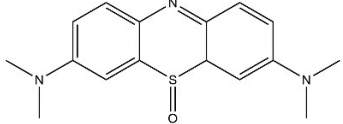
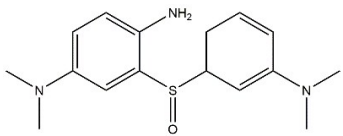
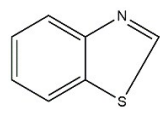
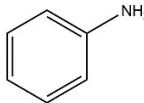
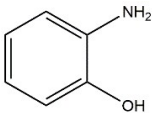
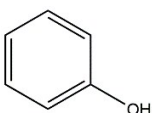
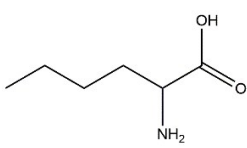
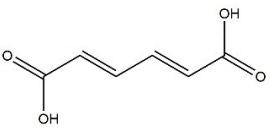
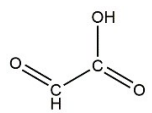
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93 Table.S3. The possible intermediates of MB in the in the Fe-C₃N₄ heterogenous photo-Fenton-like
94 system.

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Number	Molecular formula	m/z	Possible structural formula
a	C ₁₆ H ₁₈ N ₃ S	284.15	
b	C ₁₆ H ₁₉ N ₃ SO	301.17	
c	C ₁₆ H ₂₃ N ₃ SO	305.16	
d	C ₇ H ₅ NS	135.12	
e	C ₆ H ₇ N	93.04	
f	C ₆ H ₇ NO	109.10	
g	C ₆ H ₆ O	95.09	
h	C ₆ H ₁₃ NO ₂	130.16	
j	C ₆ H ₆ O ₄	143.09	
k	C ₂ H ₂ O ₃	75.03	

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