

Supporting Information for “Insight into the enhanced catalytic activity of red mud based
 $\text{Fe}_2\text{O}_3/\text{Zn-Al}$ layered double hydroxide in photo-Fenton reaction”

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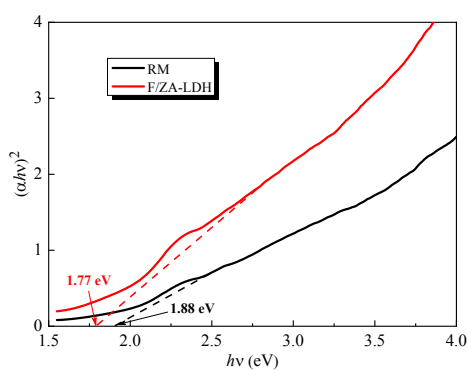


Fig. S1. Kubelka-Munk curves of RM and F/Zn-Al-LDH.

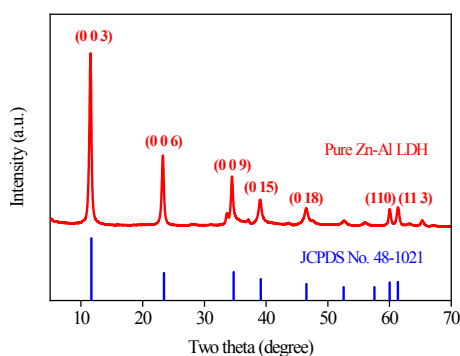


Fig. S2. XRD pattern of pure Zn-Al LDH.

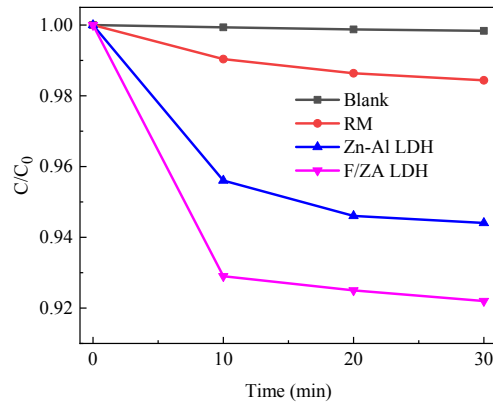


Fig. S3 Adsorption properties of OII in RM, Zn-Al LDH and F/ZA LDH composite in the dark.

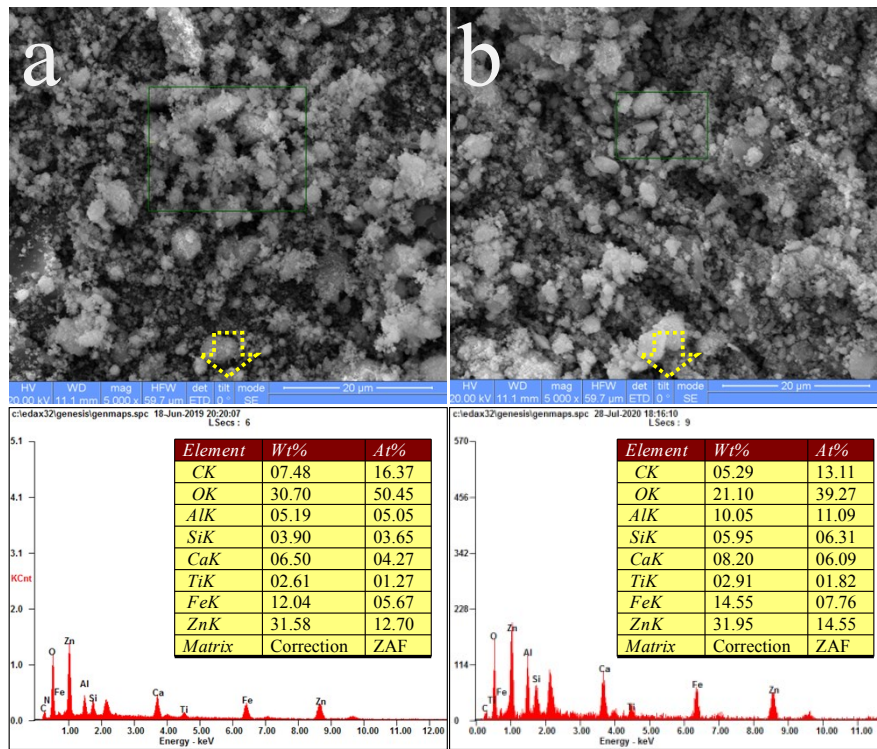
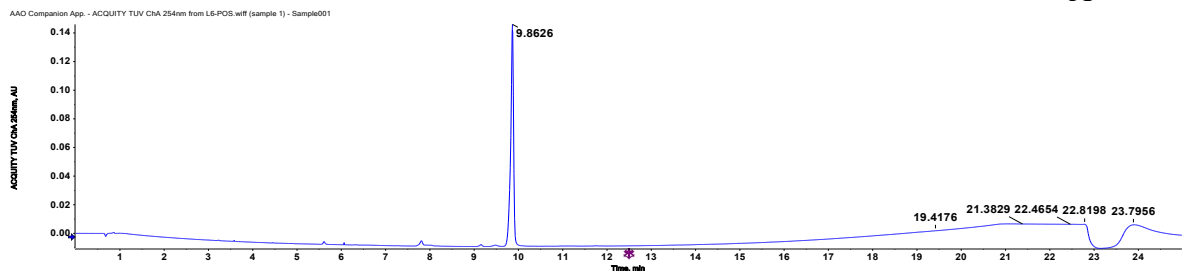
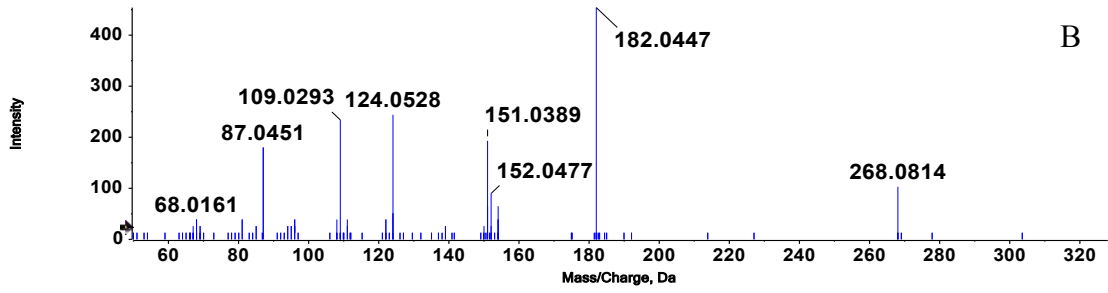


Fig. S4. SEM-EDX images of F/ZA LDH before (a) and after (b) photo-Fenton reaction.



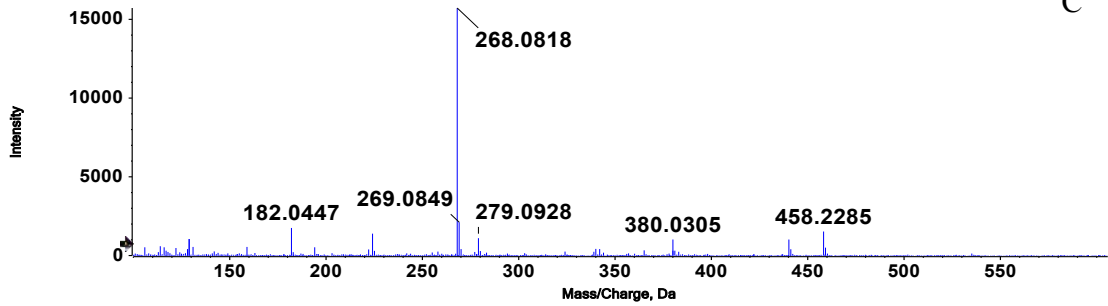
A

Spectrum from L6-POS.wiff (sample 1) - Sample001, Experiment 4, +TOF MS² (50 - 1500) from 5.718 min
Precursor: 268.1 Da, CE: 40.0



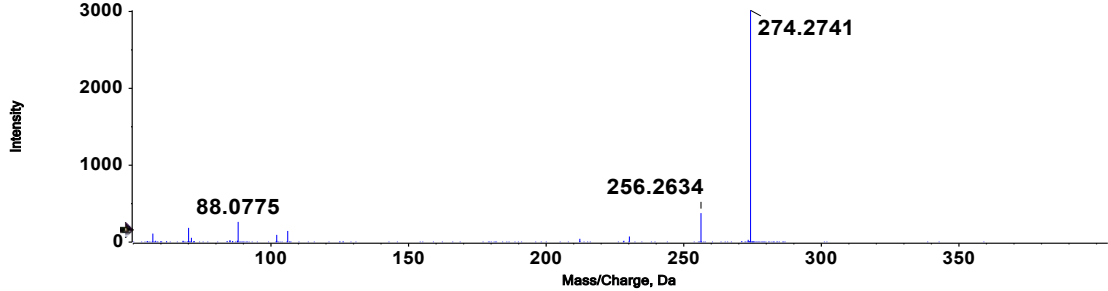
B

Spectrum from L6-POS.wiff (sample 1) - Sample001, Experiment 1, +TOF MS (100 - 2000) from 5.730 min



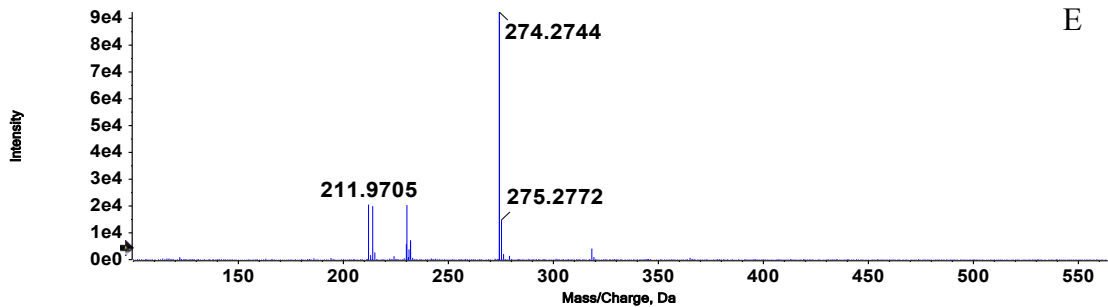
C

Spectrum from L6-POS.wiff (sample 1) - Sample001, Experiment 4, +TOF MS² (50 - 1500) from 9.159 min
Precursor: 274.4 Da, CE: 40.0



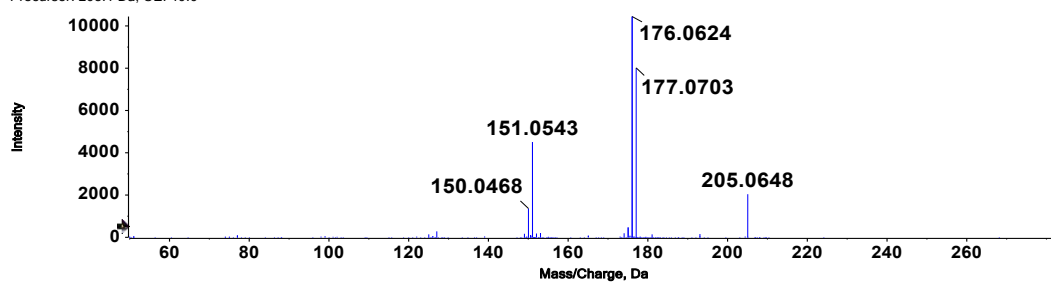
D

Spectrum from L6-POS.wiff (sample 1) - Sample001, Experiment 1, +TOF MS (100 - 2000) from 9.243 min



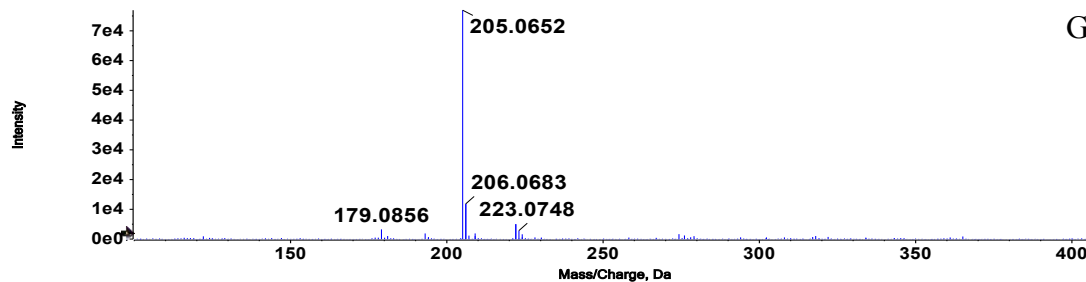
E

Spectrum from L6-POS.wiff (sample 1) - Sample001, Experiment 4, +TOF MS² (50 - 1500) from 9.947 min
Precursor: 205.1 Da, CE: 40.0



F

Spectrum from L6-POS.wiff (sample 1) - Sample001, Experiment 1, +TOF MS (100 - 2000) from 9.958 min



G

Fig. S5. MS spectra of OII and possible intermediates.

Table S1 The detailed information of OII polar intermediates photodegraded by F/ZA-LDH.

Compounds	Retention time (min)	Elemental composition	Measured mass (m/z)	Proposed structure
A	-	C ₁₆ H ₁₁ N ₂ NaO	350.32	
B	5.718	C ₈ H ₆ O ₅	182.14	
C	5.730	C ₈ H ₅ NaO ₇ S	268.18	
D	9.159	C ₁₃ H ₉ NO ₆	275.21	
E	9.243	C ₆ H ₆ NNaO ₄ S	211.17	
F	9.947	C ₁₀ H ₈ O ₃	176.17	
G	9.958	C ₁₁ H ₈ O ₄	204.18	