

Supporting Information for

Assessment of UV-Vis LED-assisted Photo-Fenton Reactor for Atrazine Degradation in Aqueous Solution

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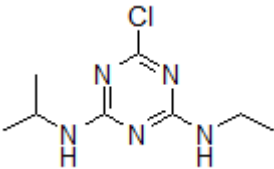
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Table S1. Physical-chemical properties and ATZ chemical structure.

Name	Atrazine
Other names	Gesaprim, Atrazin
Structure	
CAS	1912-24-9
Molecular formula	C ₈ H ₁₄ ClN ₅
Molecular weight	215.68 g mol ⁻¹ DMSO: 183 g kg ⁻¹
Solubility	Water (25°C): 34.7 mg L ⁻¹ Chloroform: 52 g kg ⁻¹
pKa	1.60
Log Kow	2.61
Melting Point	173 °C

Available from: <https://pubchem.ncbi.nlm.nih.gov/compound/2256>. Access: June 2021.

Table S2. Matrix of the 2³ full experimental design with degradation percentage values (reaction time: 30min).

Assay	Variables			Response (% degradation)
	[Fe ²⁺]	[H ₂ O ₂]	Reflector	
1	10	100	Without	70.4
2	30	100	Without	94.0
3	10	300	Without	79.9
4	30	300	Without	98.1
5	10	100	With	82.5
6	10	300	With	92.9
7	30	100	With	98.2
8	30	100	With	99.3
9	10	100	Without	69.2
10	30	100	Without	94.1
11	10	300	Without	80.0
12	30	300	Without	98.9
13	10	100	With	83.4
14	10	300	With	93.0
15	30	100	With	98.1
16	30	300	With	99.3

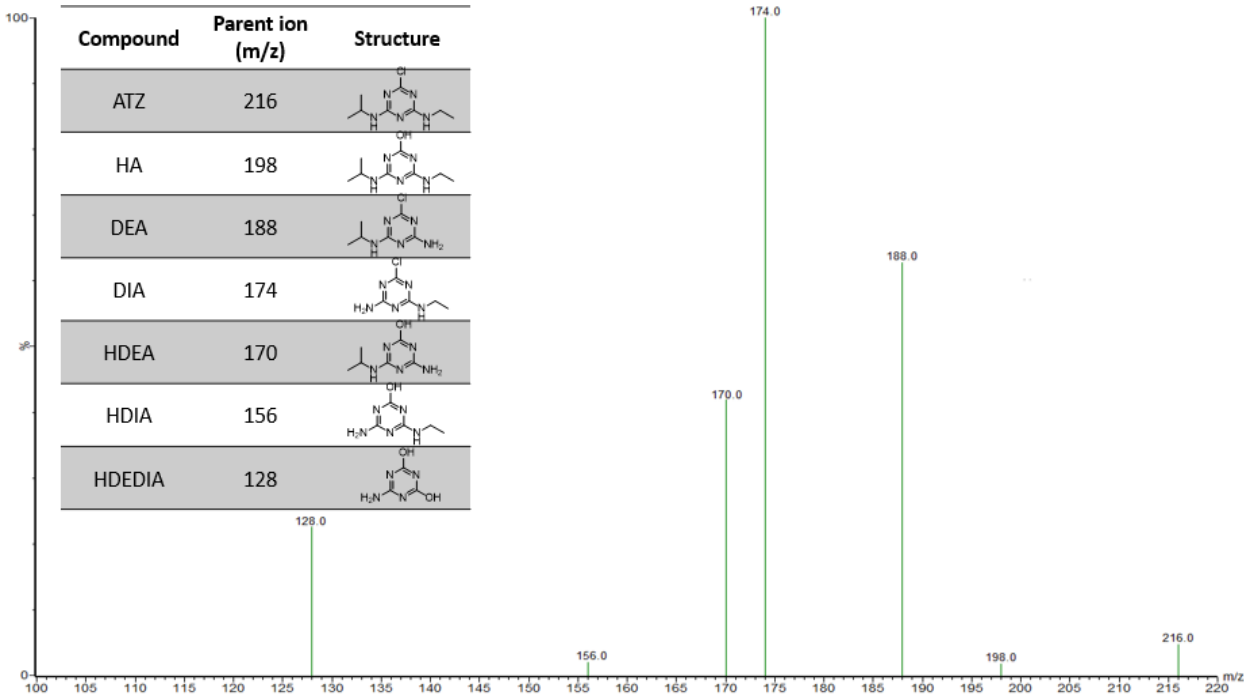


Fig. S1. UPLC/MS chromatogram of ATZ for the identification of degradation intermediates.

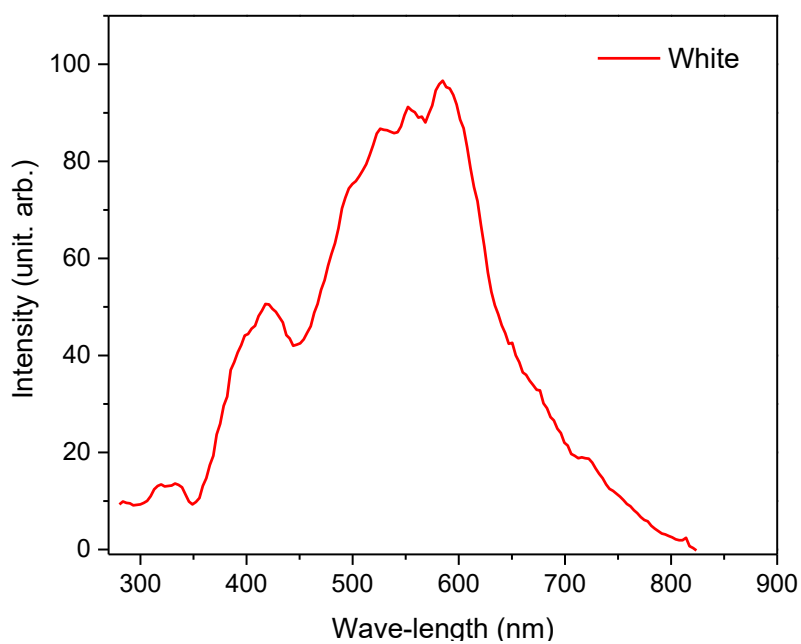


Fig. S2. Emission spectrum of the LED lamp.

Table S3. Kinetic data of degradation of ATZ by using the proposed UV-Vis LED-based photo-Fenton approach (reaction time: 240min)

<i>Time(min)</i>	<i>ATZ/ATZ₀</i>
0	1
1	0.1356
2	0.132
3	0.1265
4	0.1164
10	0.1015
20	0.0466
30	0.0286
60	0.0161
90	0.0147
120	0.0122
150	0.0121
180	8.25E-03
210	5.68E-03
240	6.83E-03