Supplementary Materials

Table S1. Textural and Optic Properties of the Synthesized Catalysts

Sample	Crystallite size (nm)	Band gap (eV)	Surface area (m^2 g^{-1})	Ionic radius (Å)	EDX composition
TiO_2	3.91	3.03	5.71	0.68	O (46.53%) Ti (1.45%)
Ni-TiO_2	2.96	2.54	12.19	0.72	O (94.98%) Ti (3.42%) Ni (1.61%)

Table S2. Composition of Formulated Wastewater

Parameters	Value
CHD concentration (mg/L)	30
pH	6.8
TOC (mg/L)	34.56
COD (mg/L)	300
BOD_5 (mg/L)	280
UV $_{254}$ absorbance	1.35

Table S3. ANOVA Analysis for Catalytic Activity of Different Photocatalyst under Visible Light

Photocatalyst	Source	Sum Square	df	Mean Square	F-value	P-value	R^2	$_{adj}$ R^2
	Quadratic	901.33	9	100.15	27.84	< 0.0001		
	Residual	35.97	10	3.60	-	-		
TiO_2	Lack of Fit	27.32	5	5.46	3.16	0.1164	0.9616	0.9271
	Pure error	8.65	5	1.73	-	-		
	Corr. Total	937.30	19	-	-	-		
	Quadratic	13,314.63	9	1,479.40	396.87	< 0.0001		
	Residual	40.00	10	-	-	-		
Ni- TiO_2	Lack of Fit	21.90	5	4.38	1.21	0.4196	0.9970	0.9943
	Pure error	18.10	5	3.62	-	-		
	Corr. Total	13,354.54	19	-	-	-		

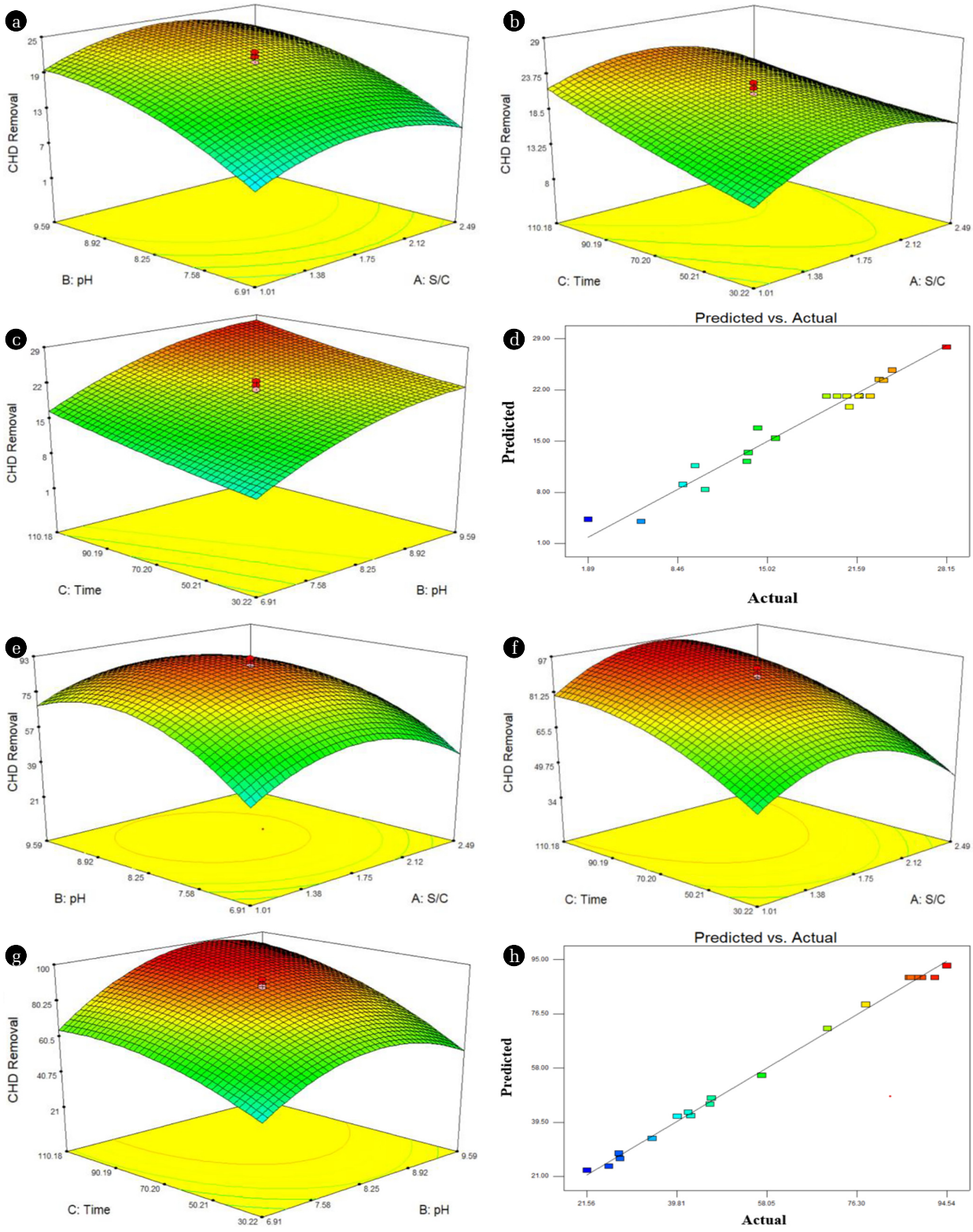


Fig. S1. Graphical representation of interaction among (a) pH and S/C; (b) Time and S/C; (c) Time and pH and; (d) Predicted versus Actual graph (TiO_2); (e) pH and S/C; (f) Time and S/C ; (g) Time and pH and ; (h) Predicted versus Actual graph (Ni-TiO_2).

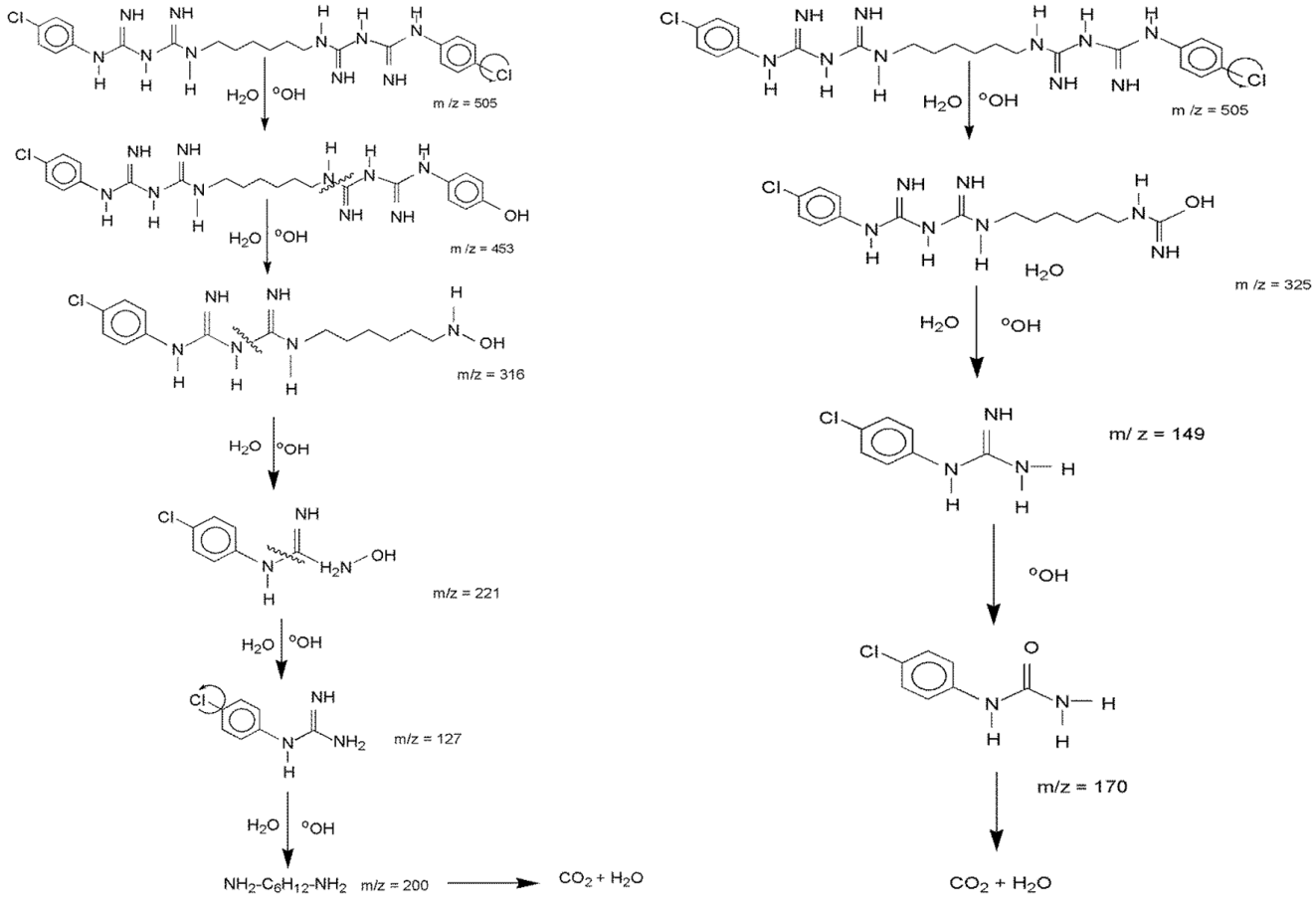
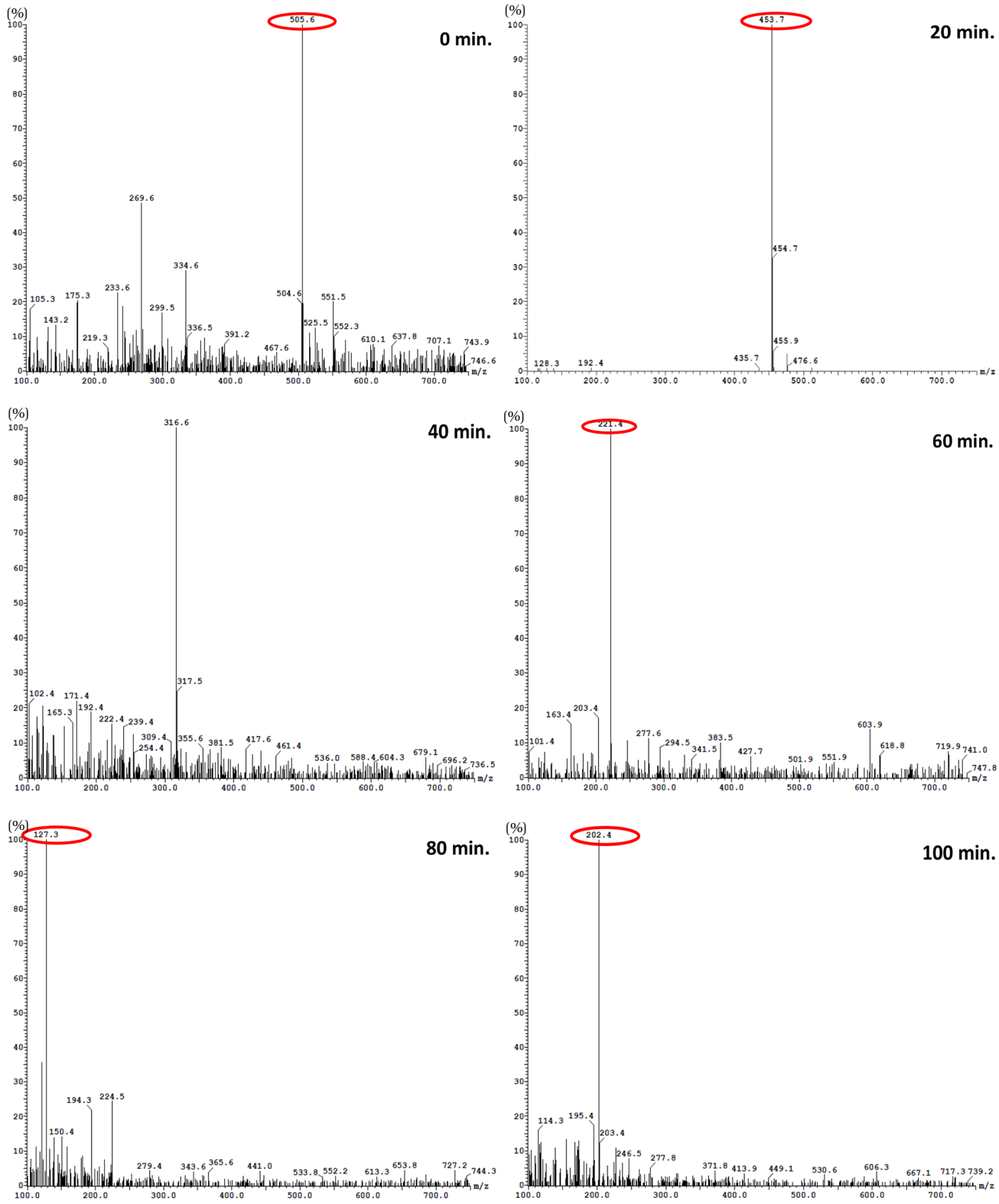


Fig. S2. Possible pathway of photocatalytic degradation of formulated wastewater using Ni-TiO2 under (a) visible light and (b) solar light.

a


0 min.
20 min.
40 min.
60 min.
80 min.
100 min.
(%)
m/z
505.6
453.7
316.6
221.4
127.3
202.4

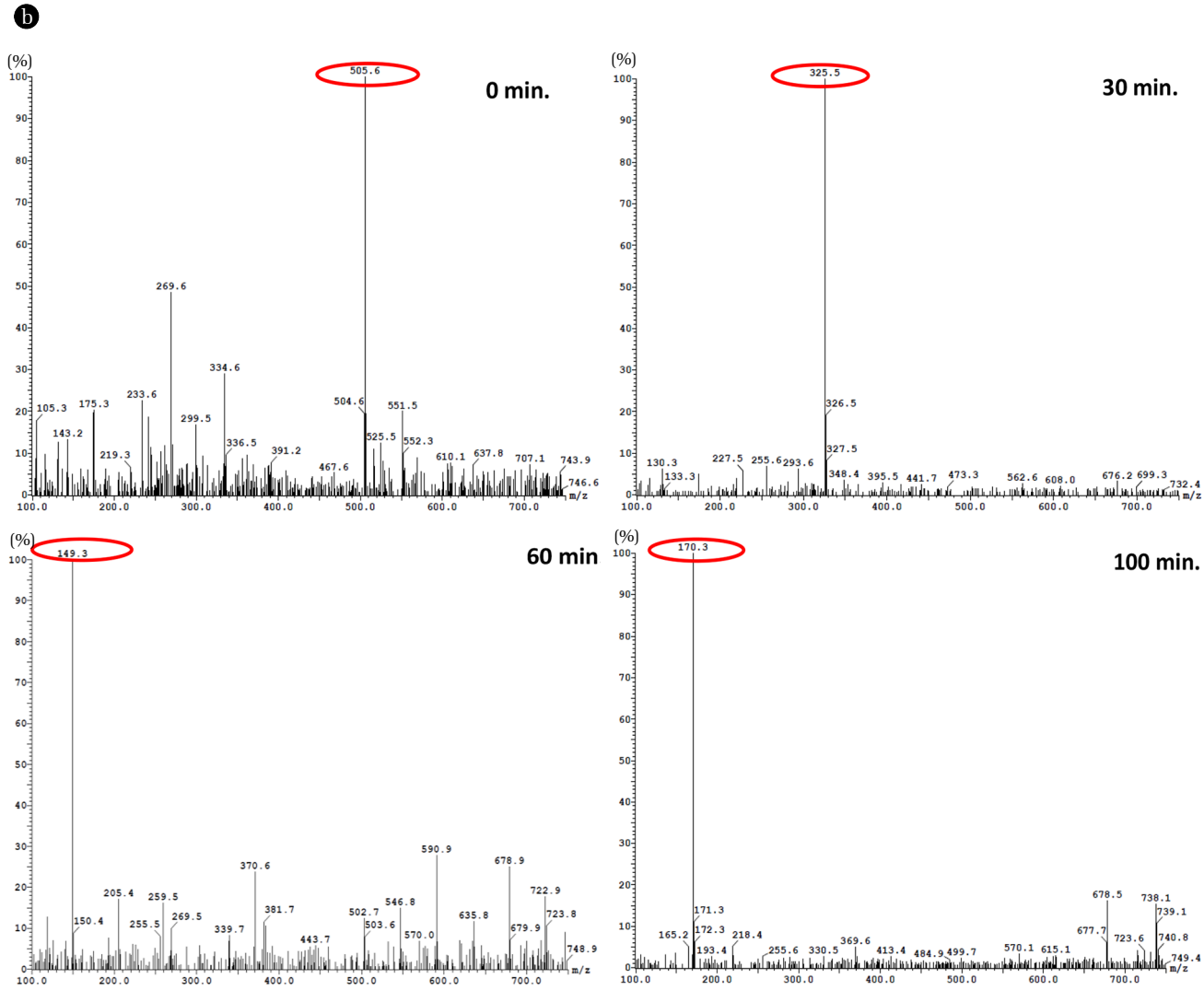


Fig. S3. LC-MS of photocatalytic degradation of formulated wastewater using Ni-TiO2 (a) under visible light; (b) under solar light.

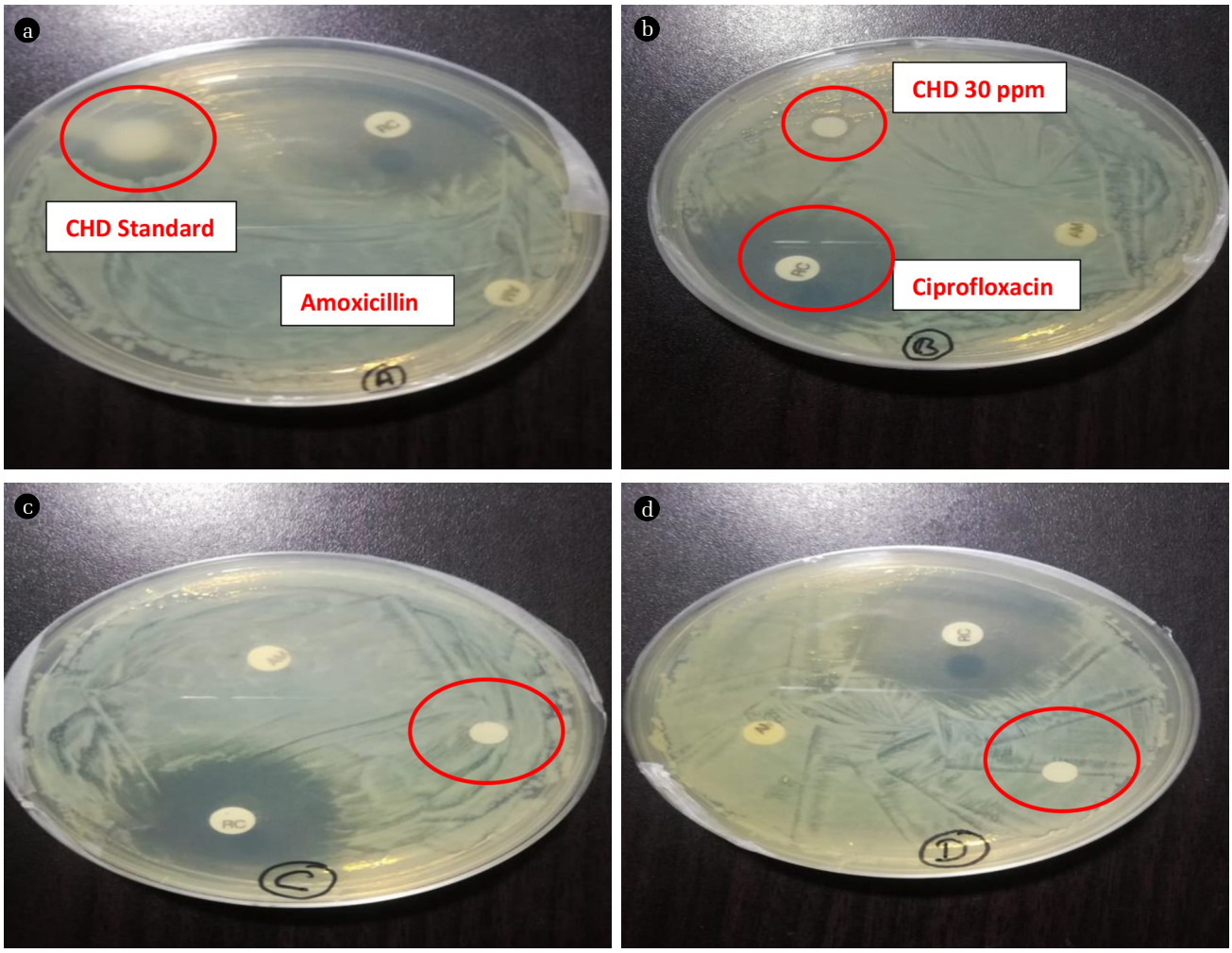


Fig. S4. Bacterial susceptibility test on bacterial strains, (a) Standard CHD; (b) CHD solution (30 ppm); (c) Formulated waste treated by Ni-TiO_2 under visible light; and (d) Formulated waste treated by Ni-TiO_2 under solar light.

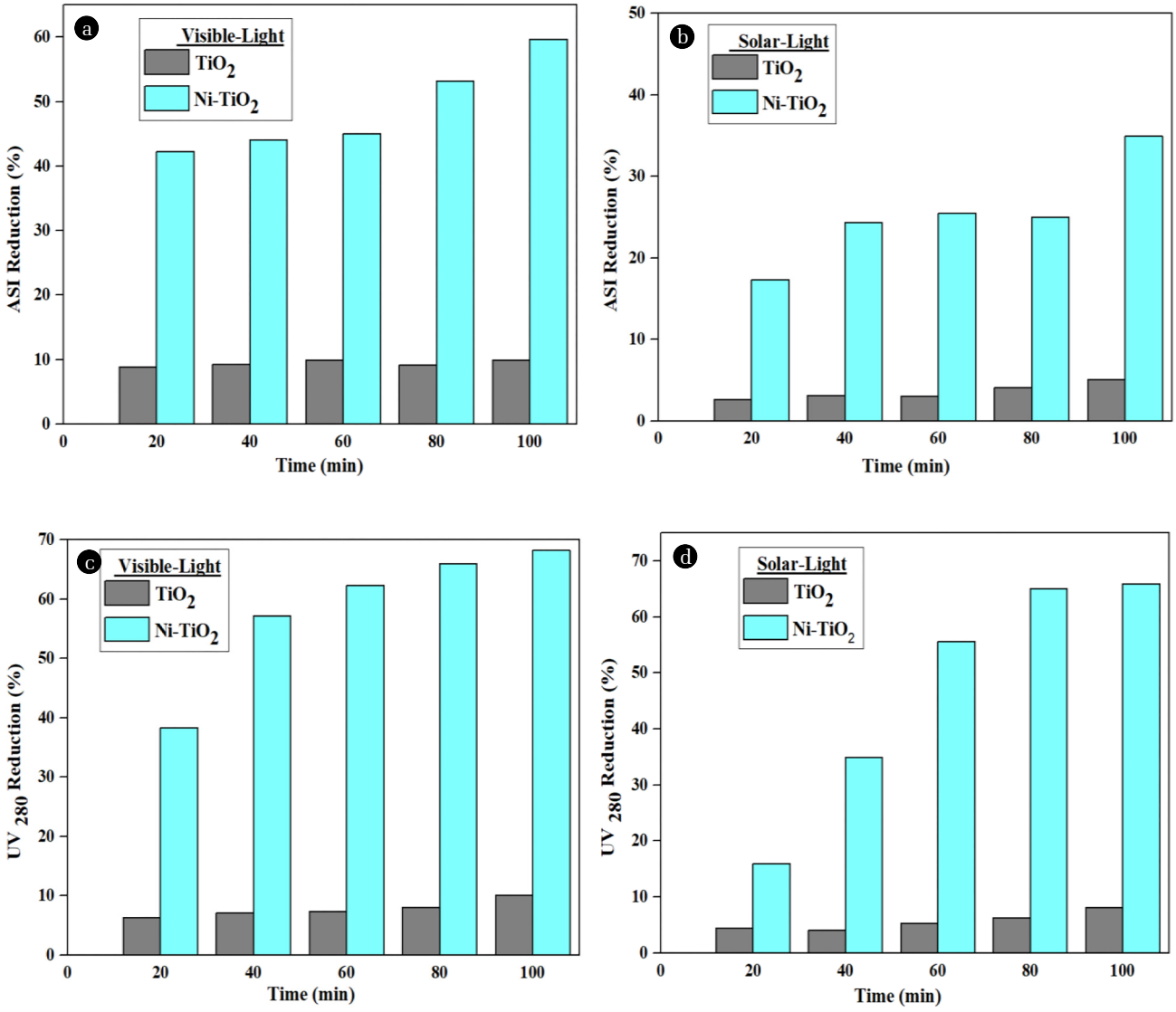


Fig. S5. Reduction in ASI values (a), (b) and UV280 (c), (d) during mineralization of CHD using TiO_2 and Ni-TiO_2 under solar and visible light.

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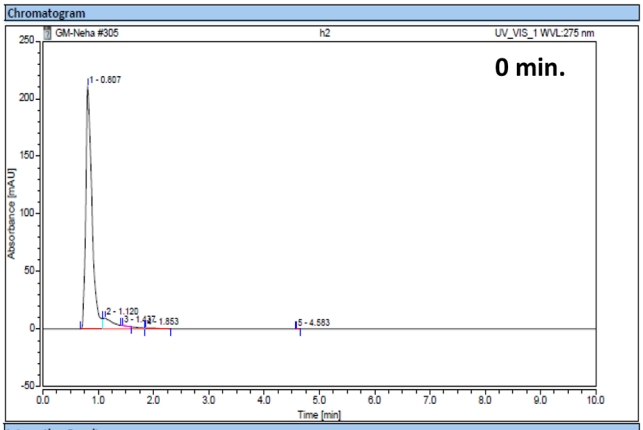
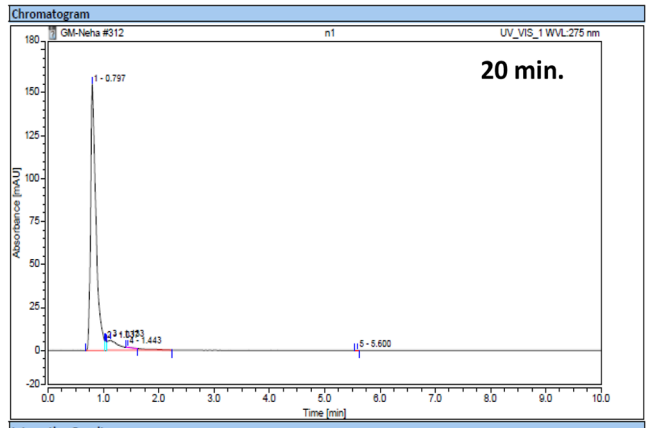


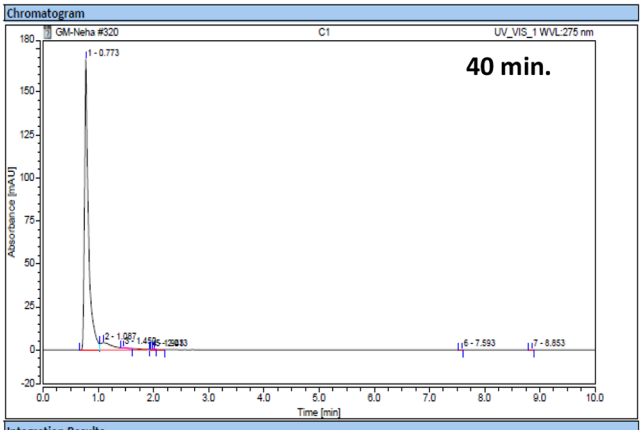
Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount n.a.
1		0.807	27.265	211.125	90.00	95.22	n.a.



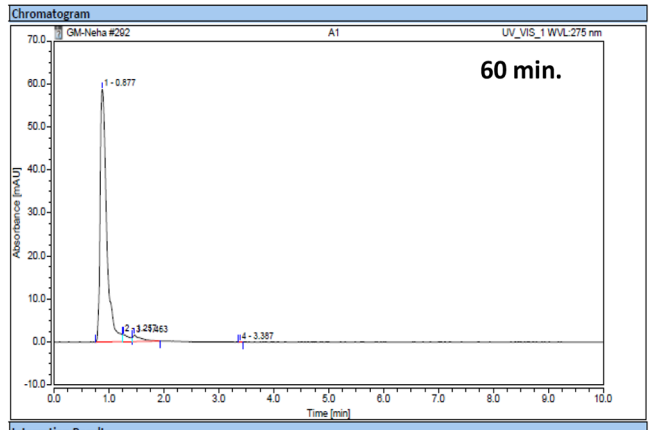
Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount n.a.
1		0.797	17.252	154.811	89.28	93.00	n.a.



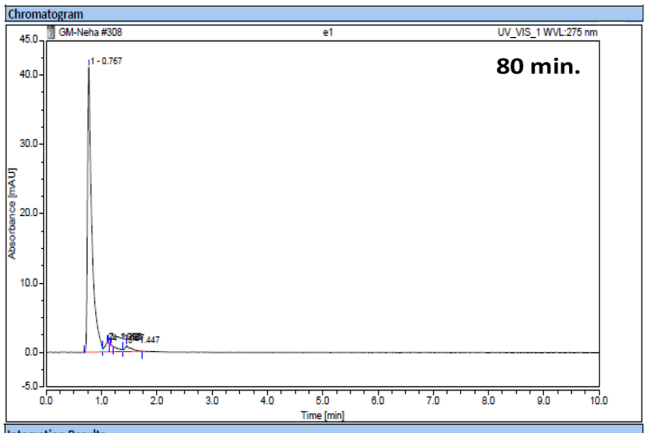
Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount n.a.
1		0.773	13.944	169.088	90.63	97.21	n.a.



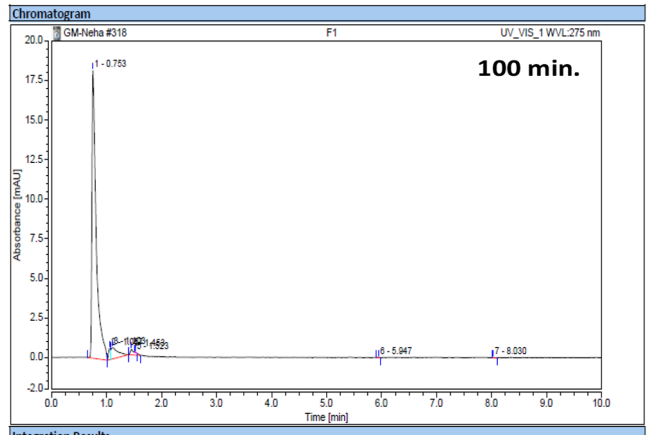
Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount n.a.
1		0.877	8.086	58.732	94.44	94.83	n.a.



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount n.a.
1		0.767	3.716	41.156	90.68	94.44	n.a.



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount n.a.
1		0.753	1.612	18.185	90.52	90.58	n.a.

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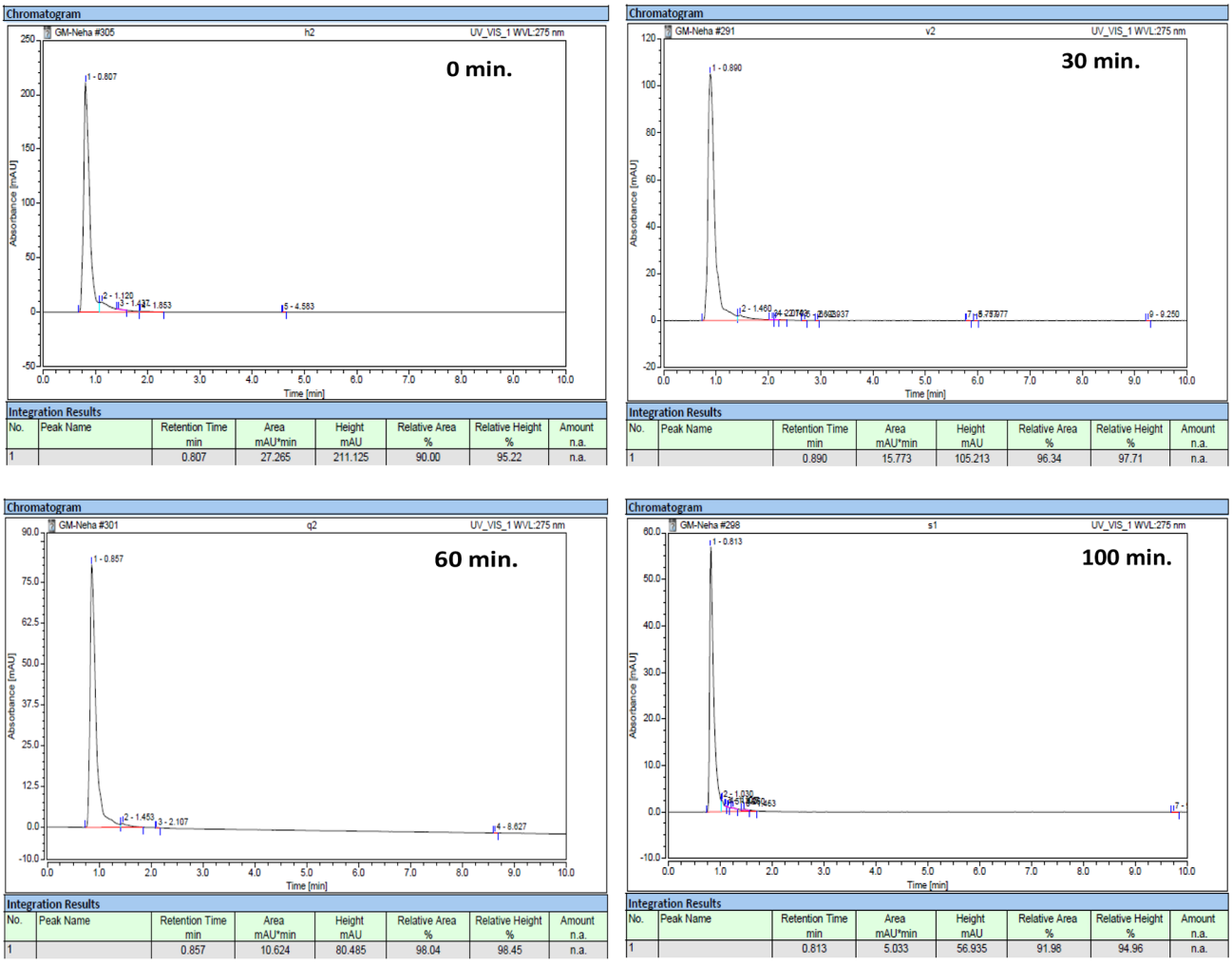

Fig. S6. HPLC of photocatalytic degradation of formulated wastewater using Ni-TiO_2 (a) under visible light; (b) under solar light.