Electronic Supplementary Material (ESI) for Physical Chemistry Chemical Physics.

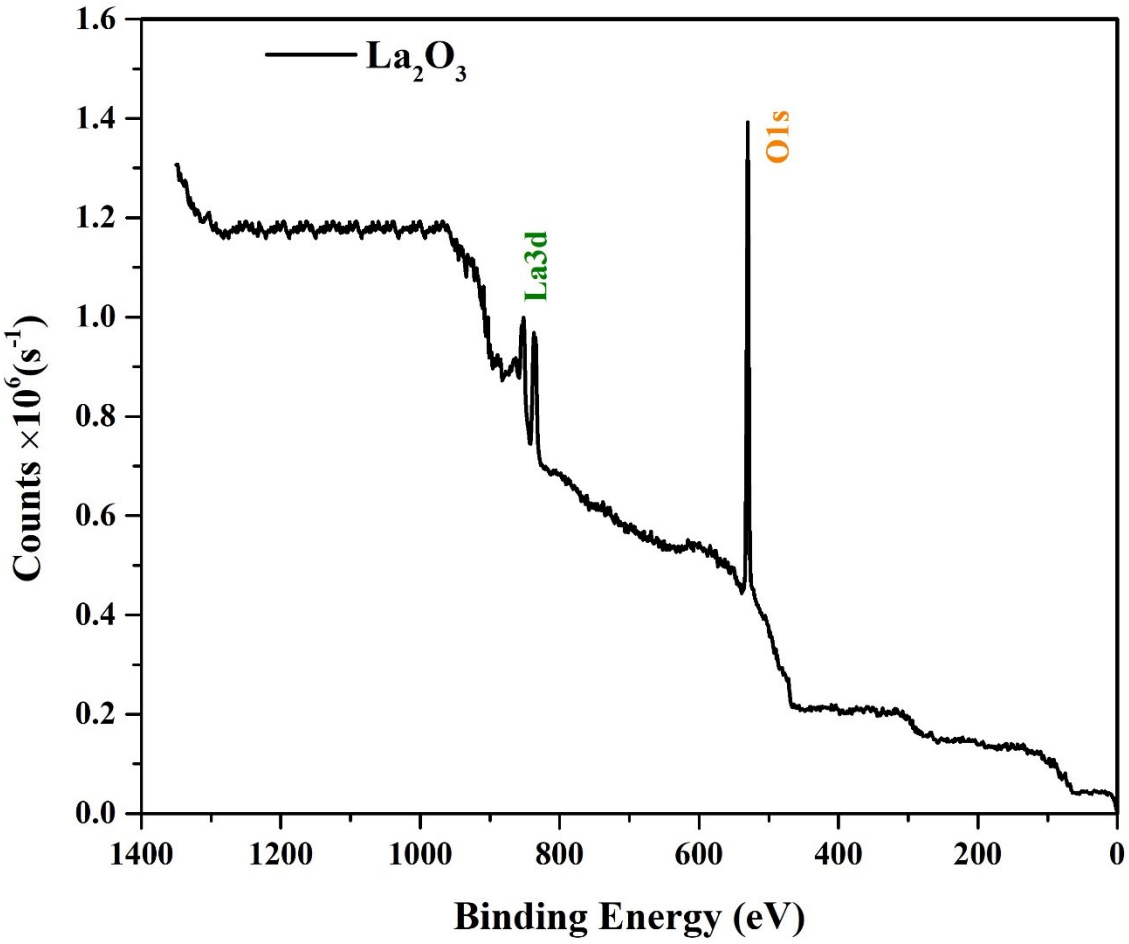

Fig. S1. XPS spectrum of pure La_2O_3.

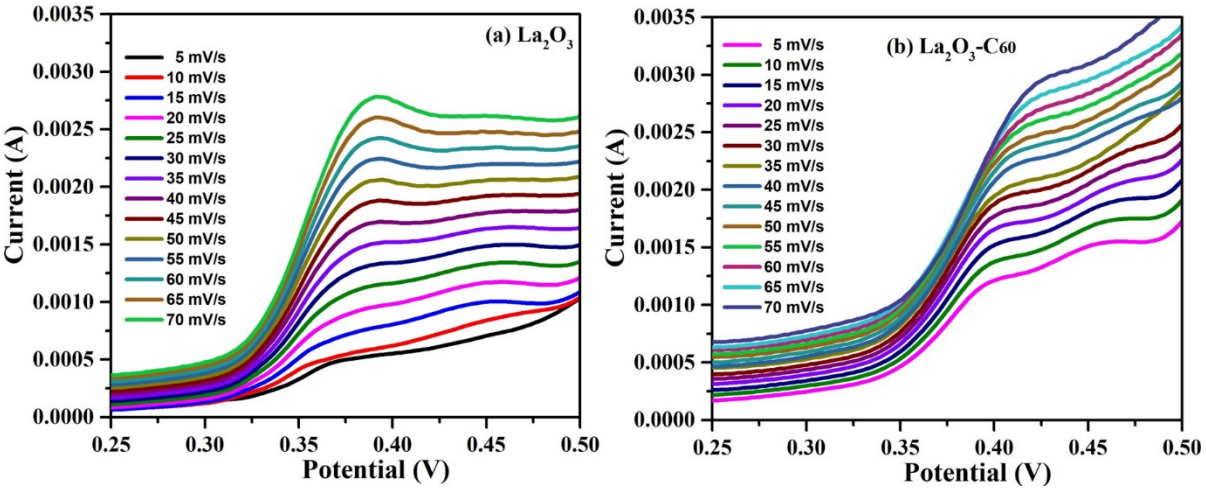

Fig. S2. Linear sweep voltammetry (LSV) curves at varying scan rates (a) pure La_2O_3 (b) La_2O_3-C_{60} nanocomposite.

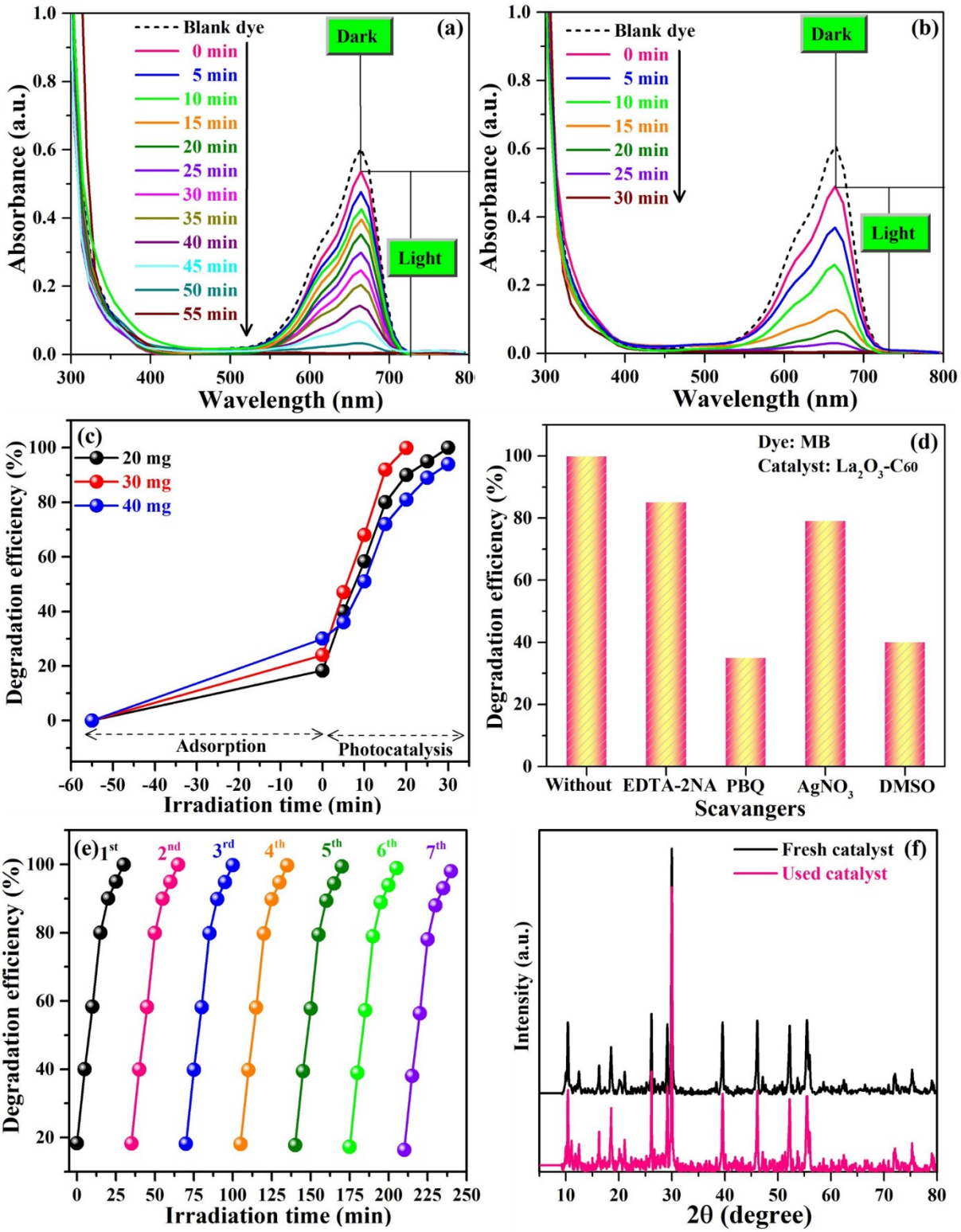

Fig. S3. absorption spectra of MB solution under UV-light irradiation at different times, (a) La_2O_3, (b) La_2O_3-C_{60} nanocomposite (c) degradation efficiency at varying catalyst amount, (d) photodegradation by adding different scavengers, (e) reusability profile, and (f) XRD pattern of the fresh and used catalyst after recyclability test.

Table S1. Comparison of specific capacitance of grown La_2O_3-C_{60} nanocomposites with other reported electrode materials.

Material	Electrolytes	Specific Capacitance (Fg^{-1})	Scan rate (mVs^{-1})	Ref.
La_2O_3-rGO	1 M H_2SO_4	692	10	[1]
La_2O_3//Co_3O_4	1 M KOH	15	5	[2]
Zn doped CdO	6M KOH	388	10	[3]
CdO	NaOH	267	5	[4]
La_2O_3 thin film	1 M KOH	147	5	[5]
ZnO/rGO	1 M Na_2SO_4	95	10	[6]
La_2O_3	1M KOH	250	5	[7]
Cr_2O_3-carbon	6 mol/L KOH	300	2	[8]
Cr_2O_3/rGO	2M KOH	206	10	[9]
La_2O_3	1M $LiClO_4$	166	5	[10]
Ag-La_2O_3	0.1 M NaOH	33	5	[11]
Cr doped NiO	3M KOH	636	5	[12]
La_2O_3-C_{60}	**1M KOH**	**741**	**5**	**Present**

Table S2. Photo-degradation kinetics parameters for La_2O_3 and La_2O_3-C_{60} nanocomposites.

Equation: y = a + b*x					
Catalysts	Intercept	Slope = K (min^{-1})	Adj. R-Square	Pearson's r	Residual Sum of Squares
La_2O_3	-0.19333	0.04681	0.80771	0.90936	1.26082
C_{60}	0.25526	0.02206	0.87618	0.94264	0.1678
La_2O_3-C_{60}	-0.01785	0.11472	0.96916	0.98759	0.14566

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