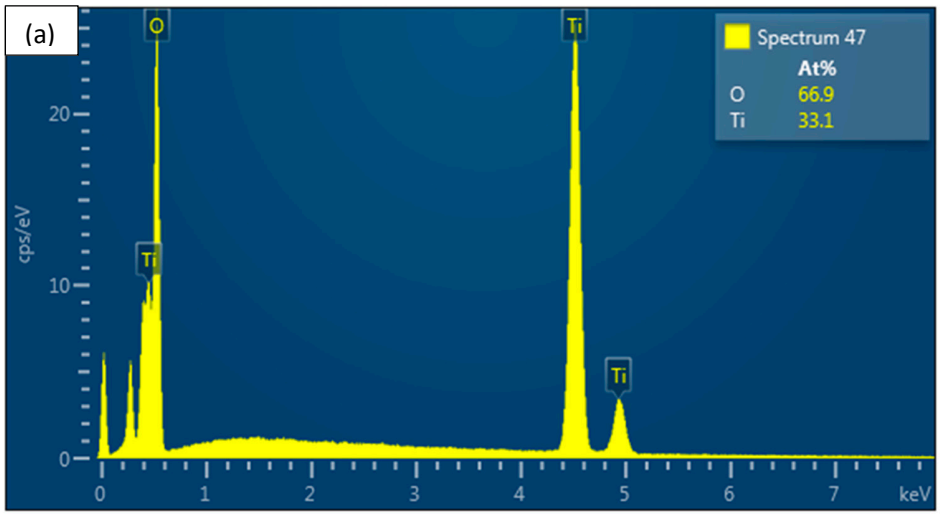
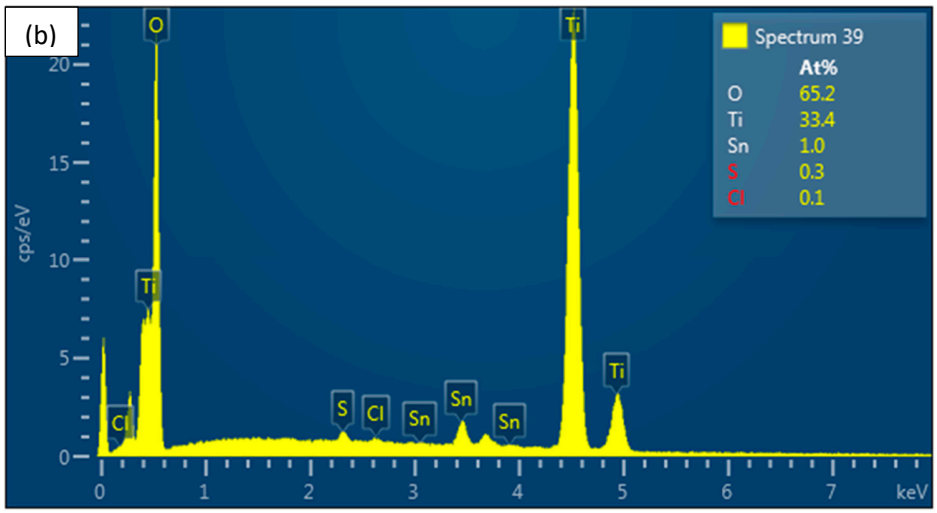
SnS_2/TiO_2 Nanocomposites for Hydrogen Production and Photodegradation under Extended Solar Irradiation

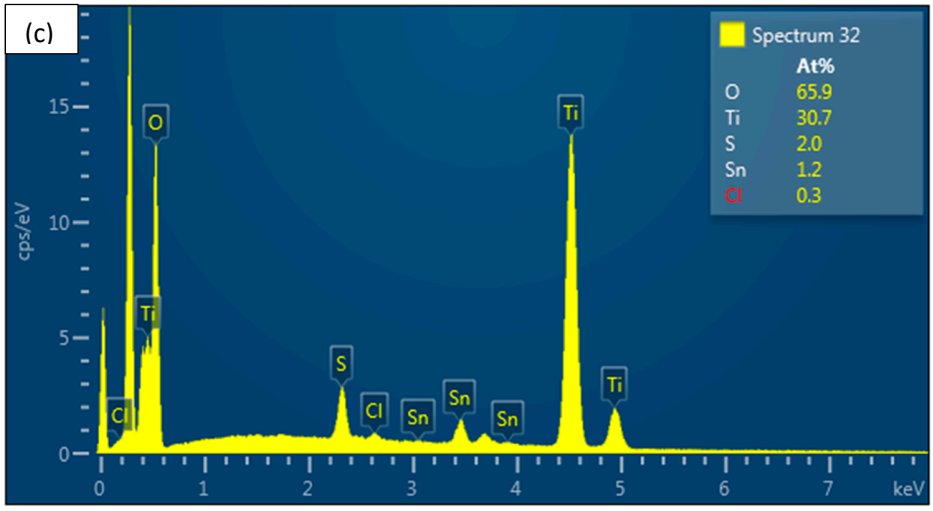
Supporting information

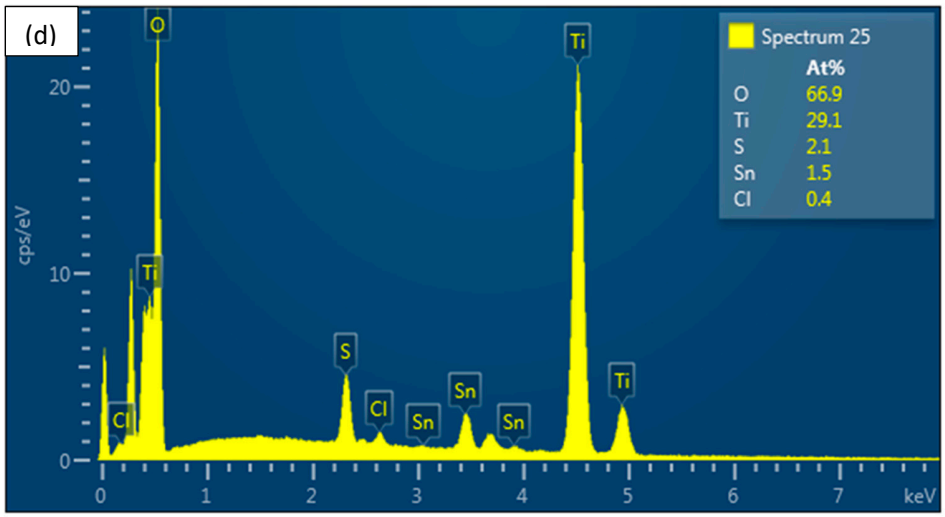
Table S1: Theoretical and experimental value of ratio between Sn and Ti from EDS analysis.

Material	Atomic ratio (Theoretical value)			Atomic ratio (Experimental value)		
	Number of atoms		Atomic ratio	Number of atoms		Atomic ratio
	Sn	Ti	Sn/Ti	Sn	Ti	Sn/Ti
ST-5	1.647065	75.4013	0.021844	1	33.4	0.029940
ST-10	3.294131	75.4013	0.043688	1.2	30.7	0.039088
ST-15	4.941196	75.4013	0.065532	1.5	29.1	0.051546
ST-20	6.588261	75.4013	0.087376	2.2	21.7	0.101382




(b)
Spectrum 39
At%
O 65.2
Ti 33.4
Sn 1.0
S 0.3
Cl 0.1
cps/eV
keV
O
Ti
Cl
S
Sn


(c)
Spectrum 32
At%
O 65.9
Ti 30.7
S 2.0
Sn 1.2
Cl 0.3
cps/eV
keV
O
Ti
S
Cl
Sn


(d)
Spectrum 25
At%
O 66.9
Ti 29.1
S 2.1
Sn 1.5
Cl 0.4
cps/eV
keV
O
Ti
S
Cl
Sn

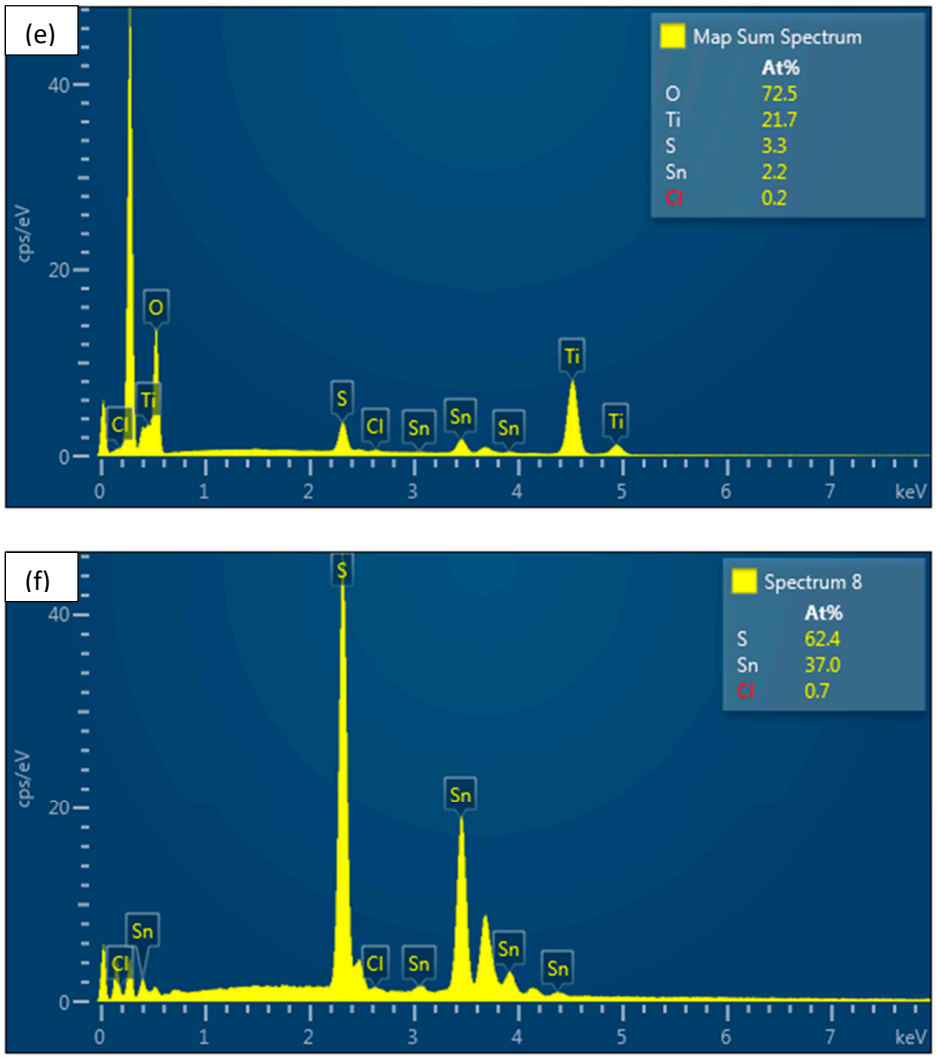


Figure S1: Elemental dispersive spectra for ST-0, ST-5, ST-10, ST-15, ST-20 and ST-100.

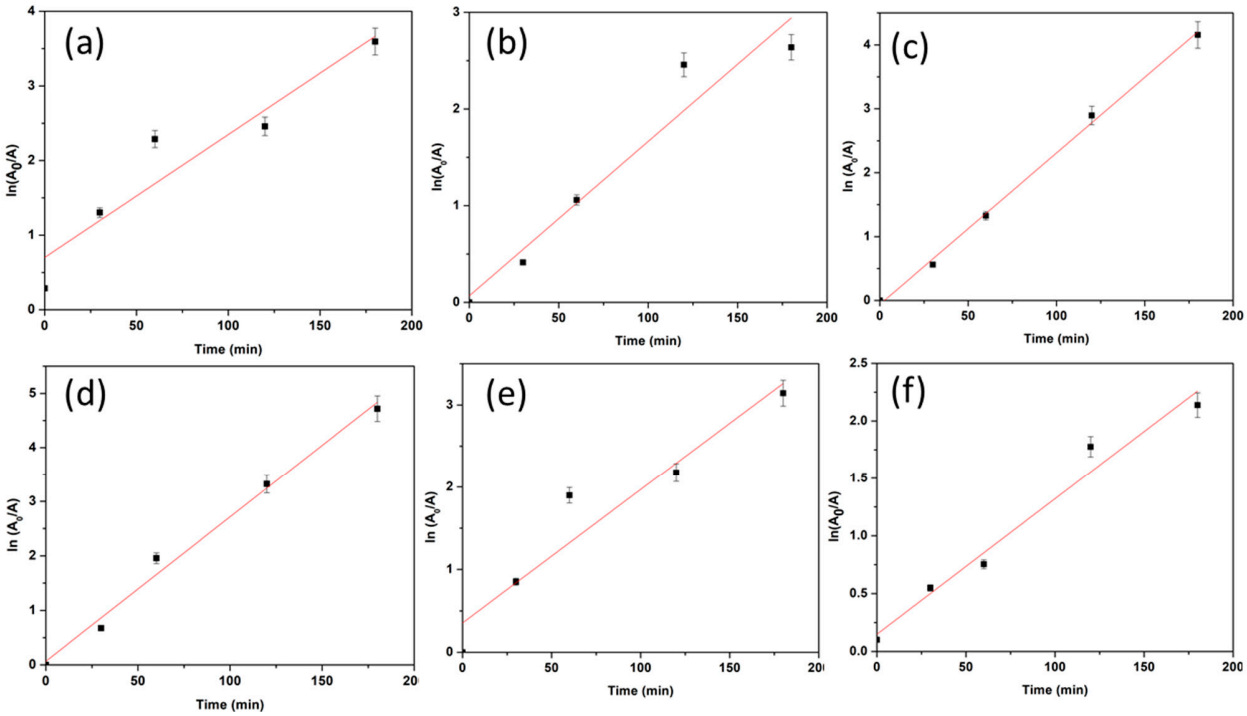


Figure S2: First order kinetics of degradation of methylene blue by using samples ST-0, ST-5, ST-10, ST-15, ST-20 and ST-100

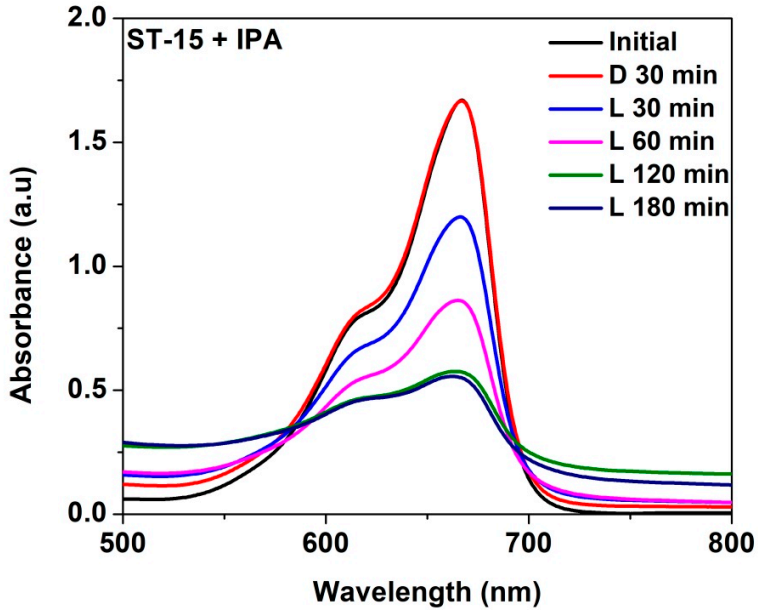


Figure S3: Absorbance *vs.* Wavelength graph for photodegradation of MB by using catalyst with IPA solution.

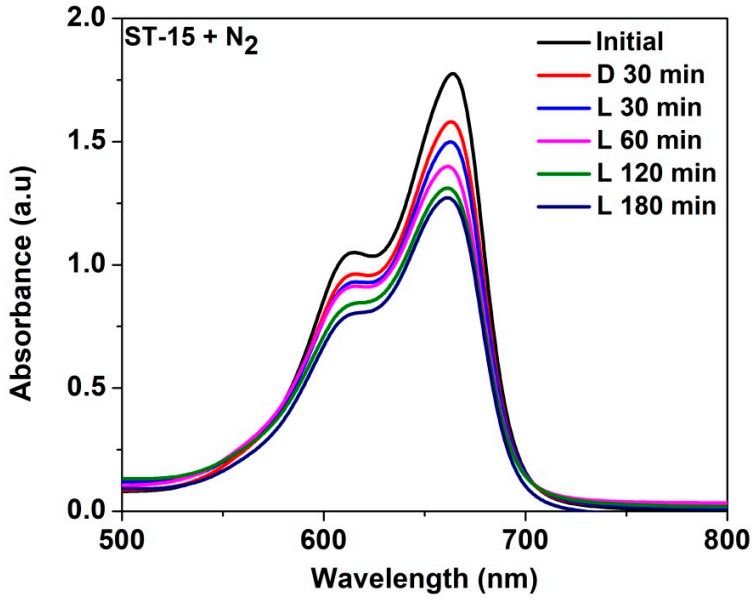


Figure S4: Absorbance *vs.* Wavelength graph for photodegradation of MB by using catalyst in the presence of N_2 gas.

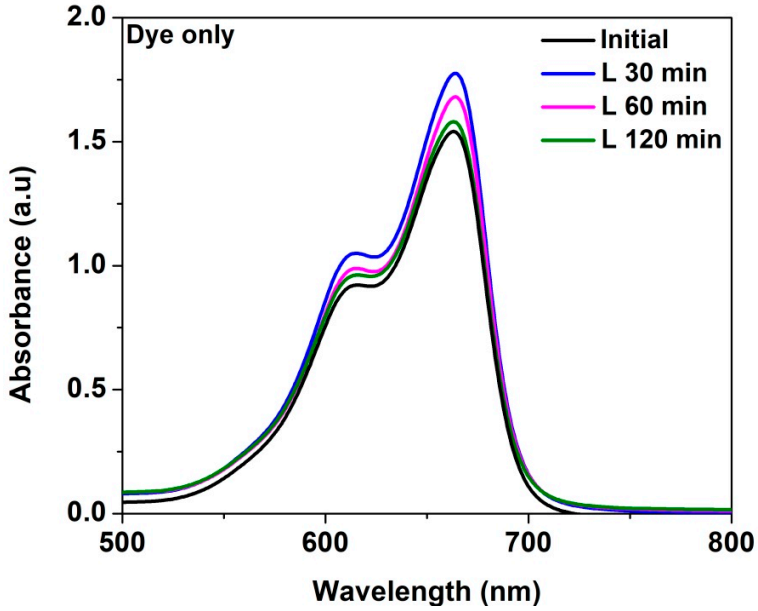


Figure S5: Absorbance *vs.* Wavelength graph for photodegradation of MB under exposure of light without catalyst.

Table S2: Rate constants for the degradation of MB with scavenging agents over simulated irradiation.

Sample	R^2 value	Rate constant (1st order) of photo degradation reaction ($\times 10^{-4}$ s^{-1})
ST-15	0.9759	4.526 ± 0.408
ST-15 + IPA	0.9574	0.990 ± 0.208
ST-15 + N_2	0.9029	0.206 ± 0.033