

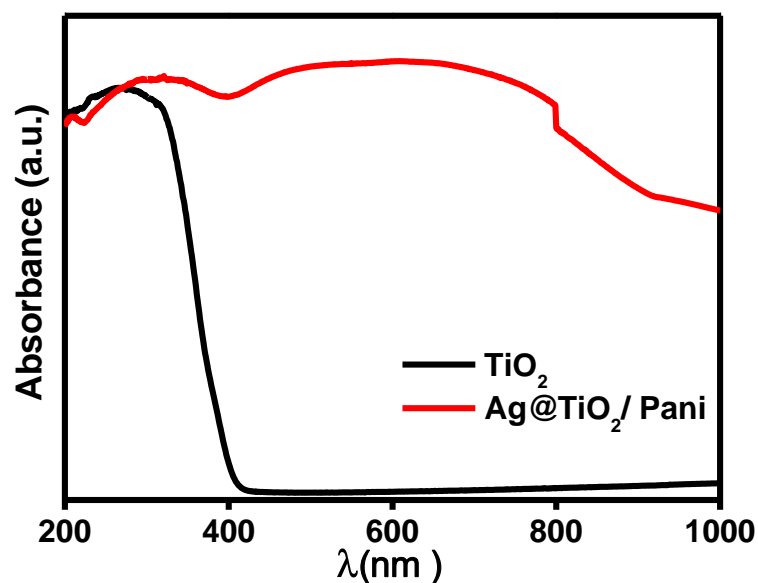
## Electronic Supplementary Information

### Enhanced thermoelectric behavior and visible light activity of Ag@TiO<sub>2</sub>/Polyaniline nanocomposite synthesized by biogenic-chemical route

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#### UV-vis diffuse absorbance spectra of pure TiO<sub>2</sub> and Ag@TiO<sub>2</sub>/Pani nanocomposite



**Fig. S1.** UV-vis diffuse absorbance spectra of pure TiO<sub>2</sub> and Ag@TiO<sub>2</sub>/Pani nanocomposite.

XPS survey spectra of Ag@TiO<sub>2</sub> and Ag@TiO<sub>2</sub>/Pani nanocomposite

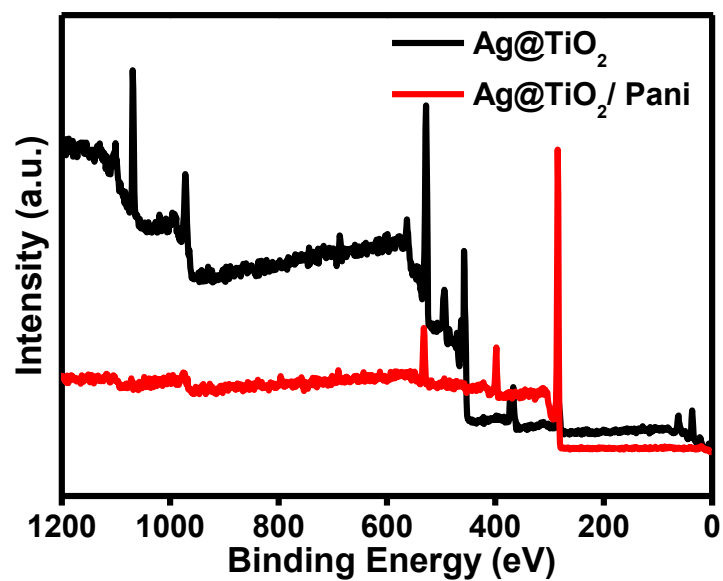


Fig. S2. XPS survey spectra of Ag@TiO<sub>2</sub> and Ag@TiO<sub>2</sub>/Pani nanocomposite.

XPS C 1s spectra of Ag@TiO<sub>2</sub> and Ag@TiO<sub>2</sub>/Pani nanocomposite

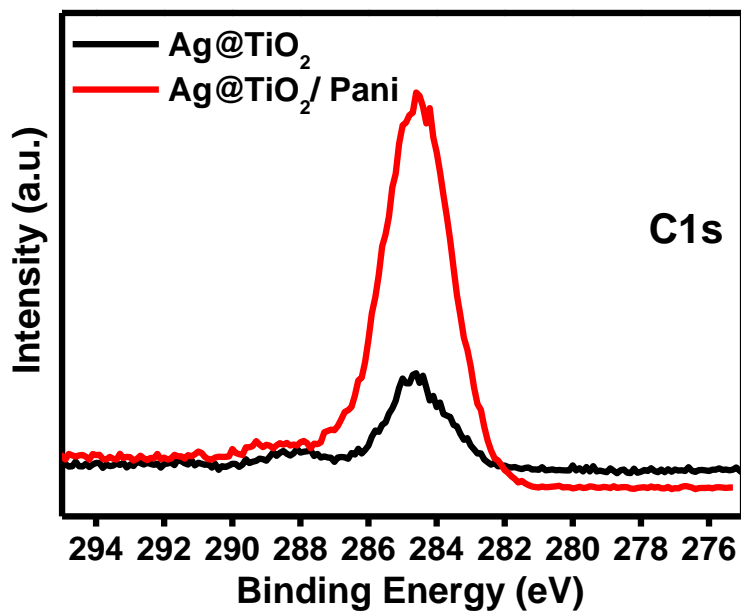
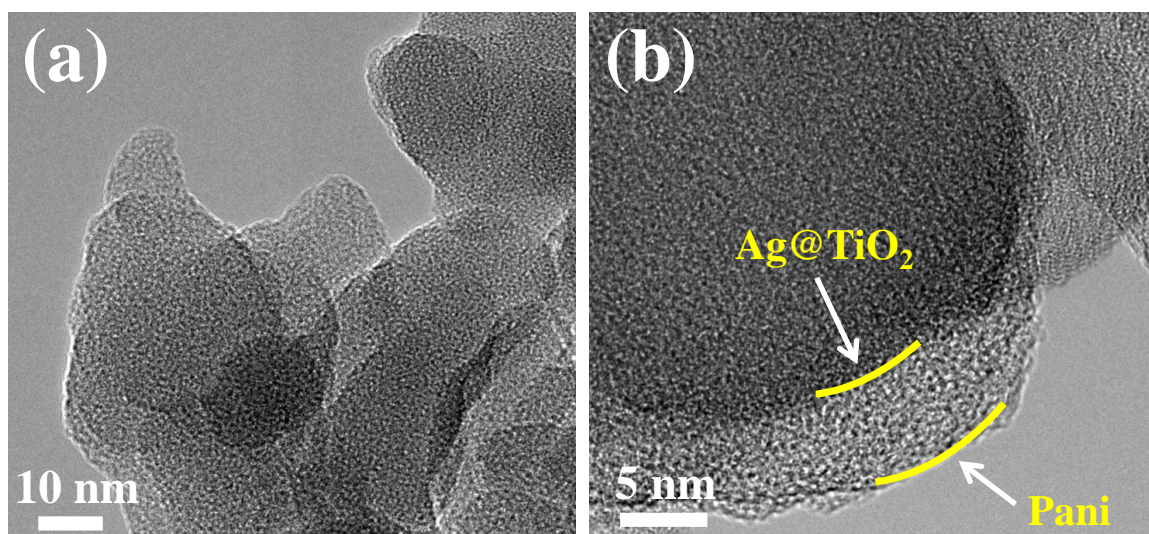


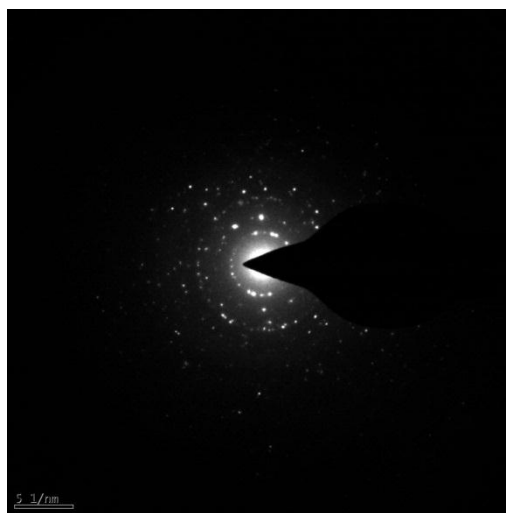
Fig. S3. XPS C 1s spectra of Ag@TiO<sub>2</sub> and Ag@TiO<sub>2</sub>/Pani nanocomposite.

### TEM and HRTEM images of Ag@TiO<sub>2</sub>/Pani nanocomposite



**Fig. S4.** (a) TEM, and (b) HRTEM image of Ag@TiO<sub>2</sub>/Pani nanocomposite.

### SAED pattern of the Ag@TiO<sub>2</sub>/Pani nanocomposite



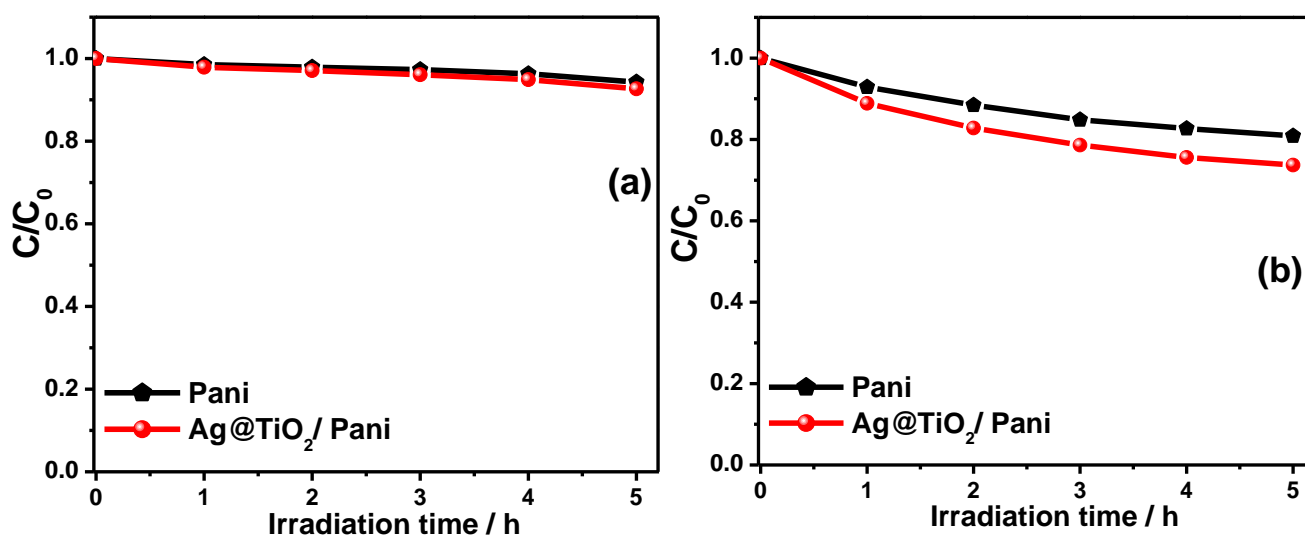
**Fig. S5.** SAED pattern of Ag@TiO<sub>2</sub>/Pani nanocomposite.

**Table S1: DC Electrical Conductivity of HCl and *p*TSA doped Ag@TiO<sub>2</sub>/Pani nanocomposite under cyclic aging conditions.**

Temperature (°C)	Sample	DC Electrical Conductivity- $\sigma$ (S/cm)				
		Cycle 1	Cycle 2	Cycle 3	Cycle 4	Cycle 5
40	Ag@TiO <sub>2</sub> /Pani (HCl doped)	6.14	5.15	4.02	3.51	3.16
50		6.46	5.52	4.23	3.70	3.28
60		6.86	5.81	4.40	3.86	3.45
70		7.16	6.01	4.54	4.08	3.59
80		7.40	6.32	4.73	4.28	3.75
90		7.62	6.51	4.92	4.52	3.96
100		7.85	6.64	5.15	4.73	4.10
110		8.32	6.90	5.47	4.91	4.33
120		8.60	7.04	5.62	5.21	4.52
130		8.79	7.20	5.79	5.44	4.74
140		8.90	7.34	5.98	5.55	4.98
150		8.97	7.42	5.90	5.62	5.31
40		Ag@TiO <sub>2</sub> /Pani ( <i>p</i> TSA doped)	14.80	12.17	9.98	9.04
50	15.70		12.86	10.61	9.62	8.73
60	16.46		13.60	11.21	10.29	9.30
70	17.38		14.34	11.89	10.85	9.86
80	18.12		14.92	12.56	11.44	10.40
90	19.05		15.60	13.20	12.09	10.99
100	20.00		16.32	13.83	12.66	11.57
110	21.12		17.07	14.54	13.23	12.15
120	22.12		17.50	15.06	13.68	12.69
130	22.45		18.02	15.56	14.24	13.21
140	21.49		18.16	16.00	14.73	13.81
150	18.54		17.57	16.11	15.10	14.16

**Photodegradation of (a) MB, and (b) BB by Pani and Ag@TiO<sub>2</sub>/Pani nanocomposite under UV light irradiation**

The Ag@TiO<sub>2</sub>/Pani nanocomposite was also tested for the photocatalytic degradation of MB and BB under UV light irradiation (specification: Philips lamp, 16 W).



**Fig. S6.** Plot of  $C/C_0$  vs the irradiation time (h) for the photodegradation of (a) MB, and (b) BB by Pani and Ag@TiO<sub>2</sub>/Pani nanocomposite under UV light irradiation.