Electronic Supplementary Material (ESI) for Environmental Science: Nano.

Supplementary Information

Bi_2O_3/Nylon multilayered nanocomposite membrane for the photocatalytic inactivation of waterborne pathogens and degradation of mixed organic pollutants

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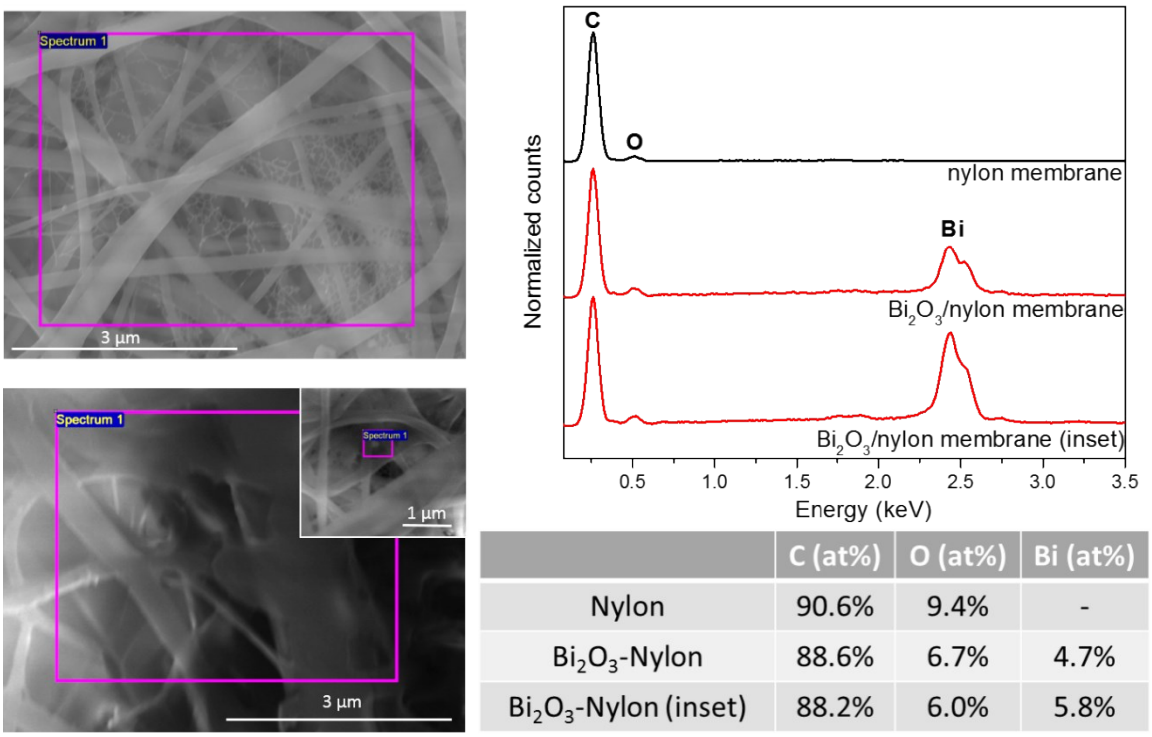
Table S1 FT-IR band assignments of Nylon-6.

Wavenumbers (cm^{-1})	IR Assignements	Reference
3297	-NH stretching	[1-3]
3084	-CH stretching (asym); -NH Fermi resonance;	[1-3]
2936	-CH_2 asymmetric stretching vibrations in polyamide backbone;	[2, 3]
2860	-CH_2 symmetric stretching vibrations in polyamide backbone;	[1,3]
1638	Amide I stretching (C=O stretching);	[1-4]
1540	Amide II stretching (as a combination of -CN stretching and -NH bending);	[1-3]
1461	-NH deformation; -CH_2 scissoring;	[3]
1370	Amide III stretching + -CH_2 wagging;	[2,3]
1296	-CH_2 wagging/twisting;	[3]
1262	Amide III stretching + -CH_2 wagging;	[1,2]
1236	-CH_2 wagging/twisting;	[2]
1200	-CCH bending (sym); -CH_2 twisting/twisting; Amide III;	[1,2,4]
1170	CO-NH skeletal motion	[2,4]
1121	C-C stretching (sym) (amorphous phase)	[2,4]
972	CO-NH in plane (γ)	[2,3,4]
930	CO-NH in plane (α)	[2,4]



	C (at%)	O (at%)	Bi (at%)
Nylon	90.6%	9.4%	-
Bi_2O_3-Nylon	88.6%	6.7%	4.7%
Bi_2O_3-Nylon (inset)	88.2%	6.0%	5.8%

Fig. S1 EDX spectra of A) bare Nylon and B) Bi_2O_3/Nylon multilayered membranes.

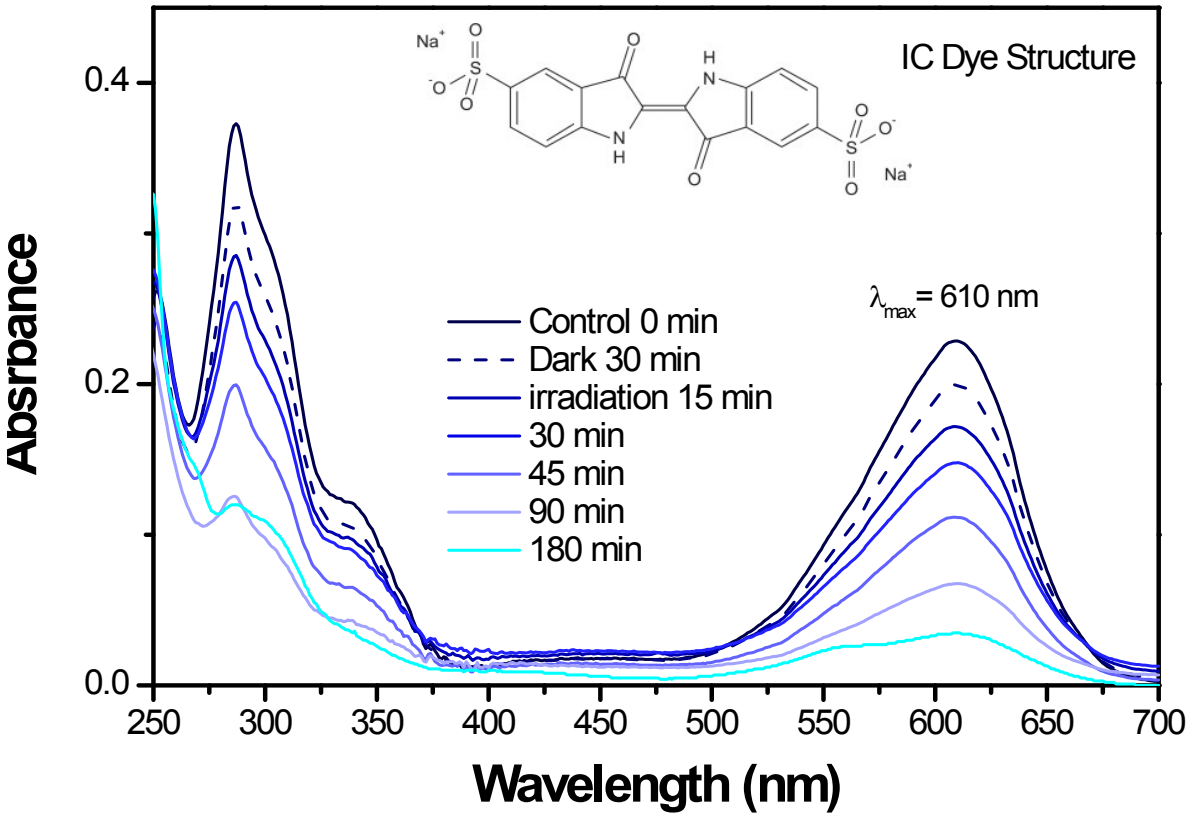


Fig. S2 Absorbance spectra of the IC dye removal using Bi_2O_3/Nylon composite under LED lamp.

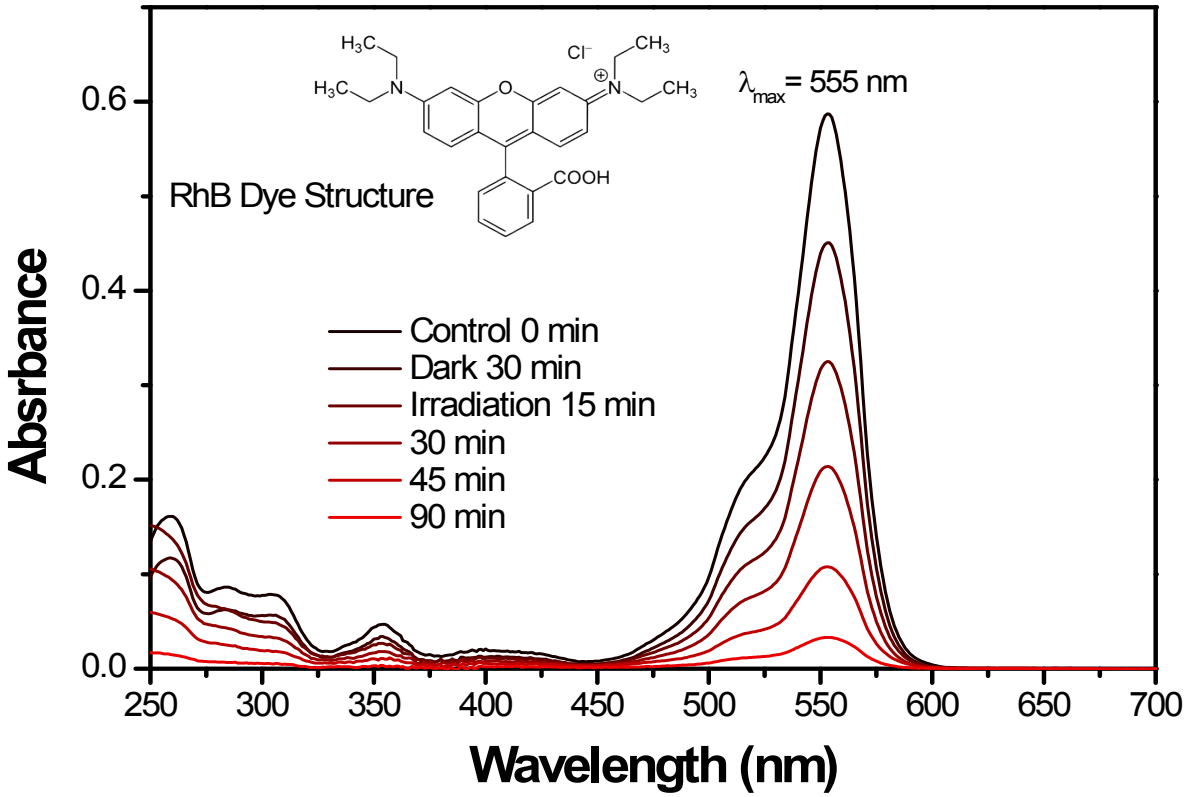


Fig. S3 Absorbance spectra of the IC dye removal using Bi_2O_3/Nylon composite under LED lamp.

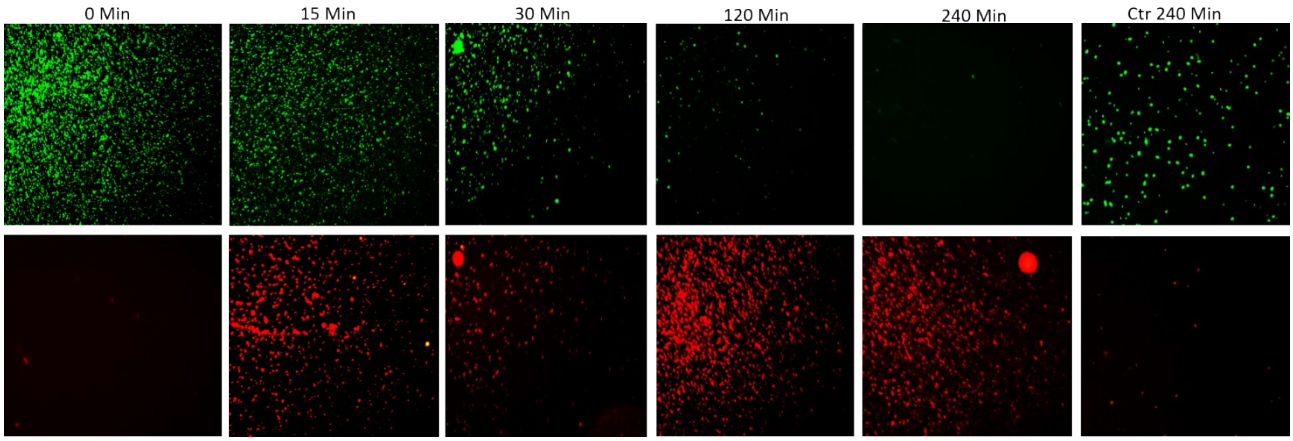


Figure. S4. Acquired separate live and dead fluorescence stained images of *E. coli* cells using Bi_2O_3/Nylon

References

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