Supporting Information

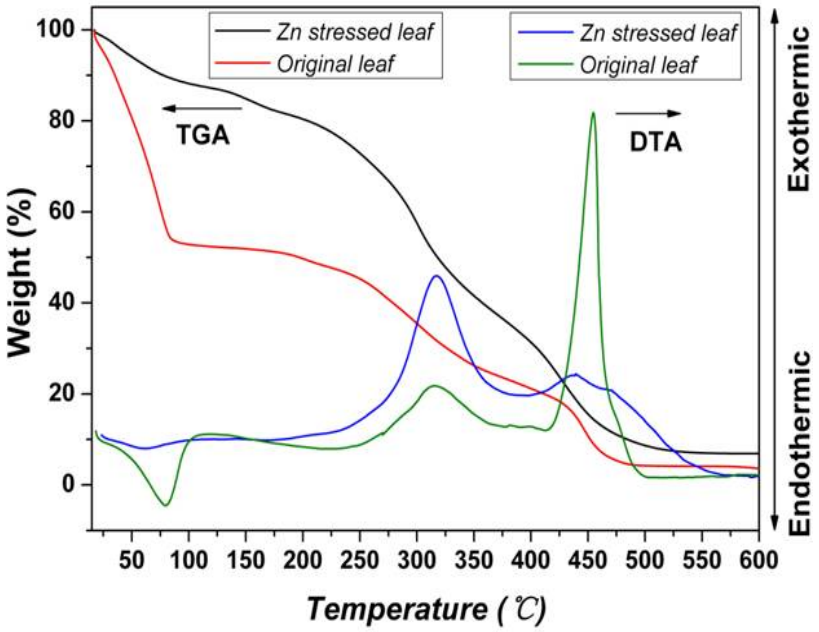

Figure S1. TGA and DTA curves of the original leaf and Zn stressed leaf, indicating that after calcination at 550 ºC, the green leaves serving as the structural templates were removed completely.

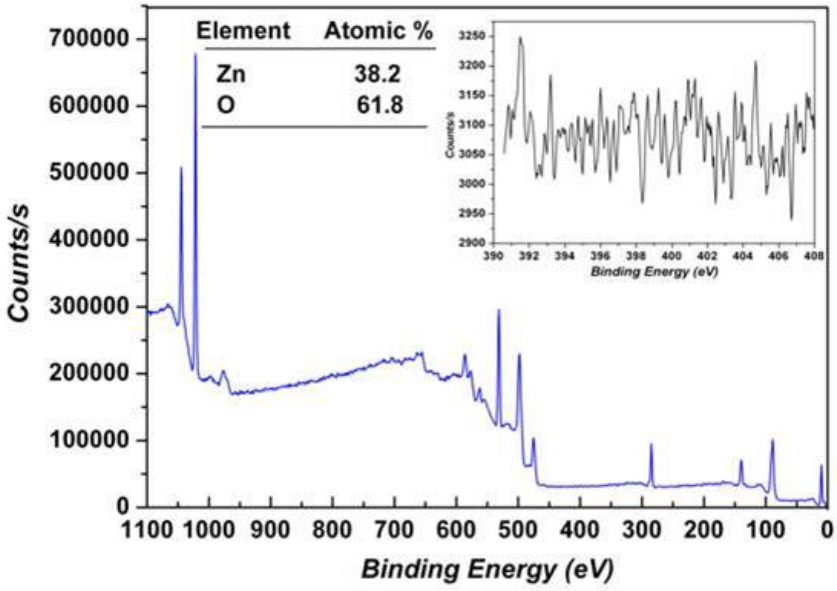

Figure S2. XPS pattern of common ZnO synthesized without templates, with the inset of high resolution spectrum of N 1s.

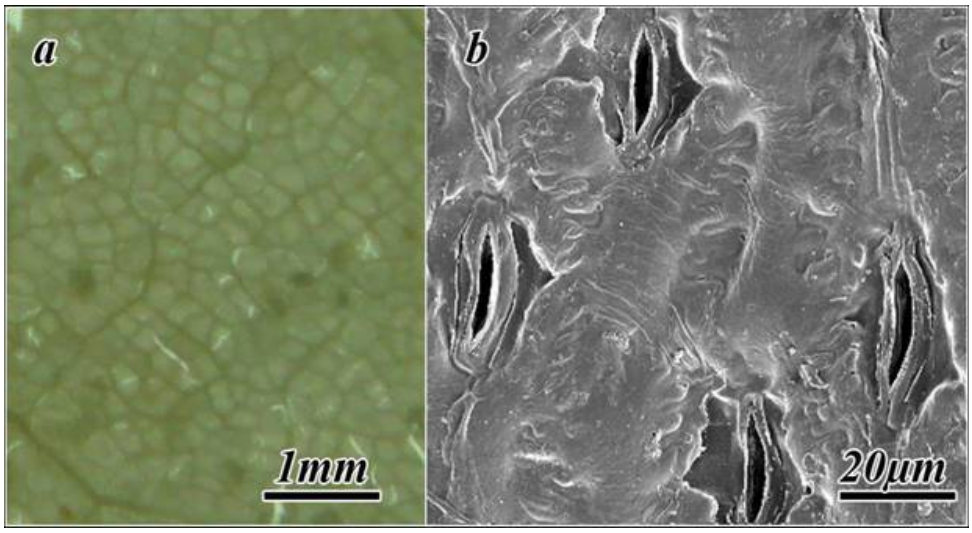

Figure S3. Surface images of artificial N-doped ZnO photocatalyst system derived from *Cinnamomum camphora* leaf **a.** obtained by digital microscope. **b.** obtained by FESEM.

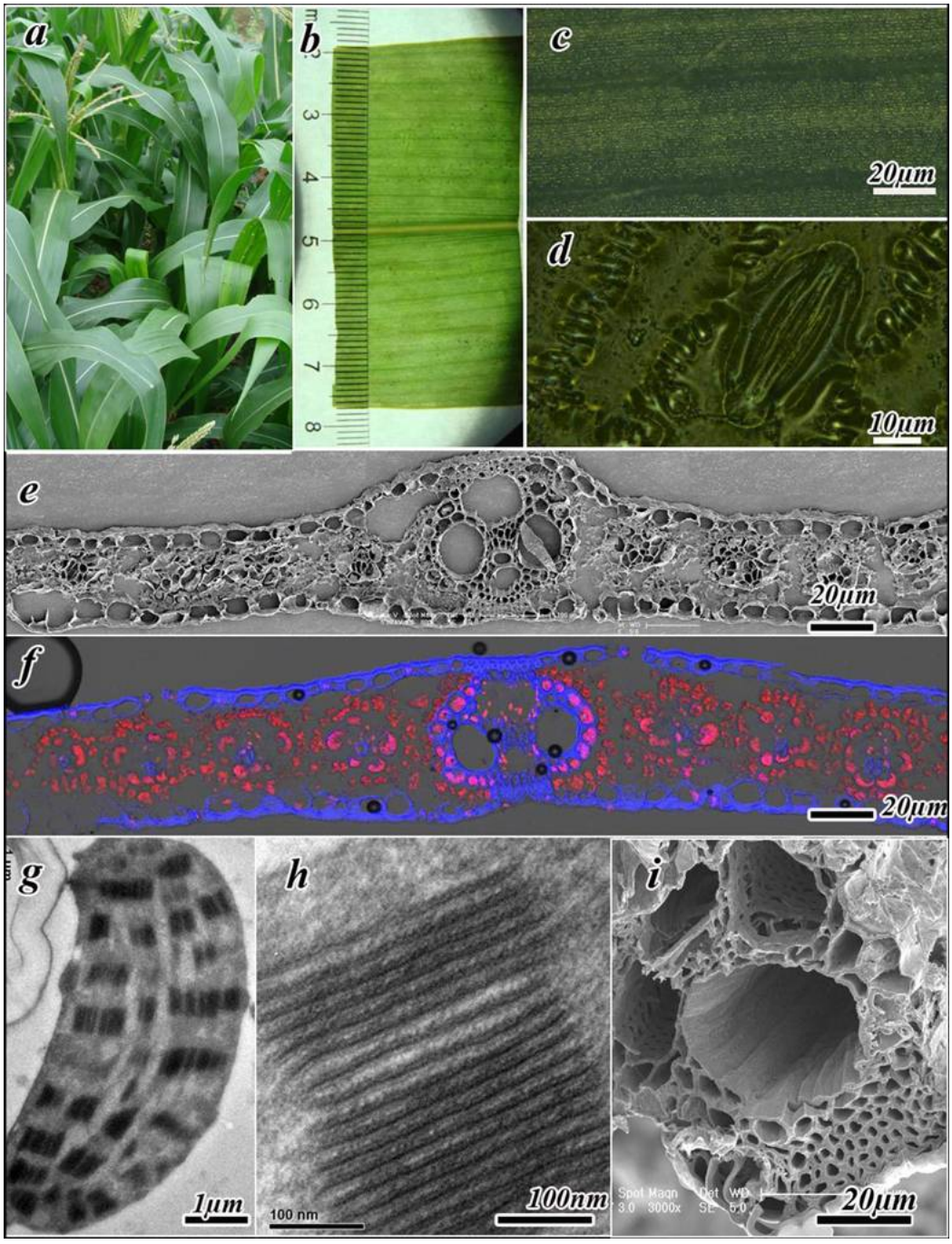

Figure S4 a, Digital picture of *Zea Mays Linn.* **b,** Digital picture of an individual *Zea Mays Linn.* leaf. **c,** Surface images of *Zea Mays Linn.* leaf obtained by Keyence. **d,** a magnified image of *Zea Mays Linn.* Leaf cutile obtained by Keyence. **e,** Cross-section of *Zea Mays Linn.* leaf by FESEM. **f,** Cross-section of *Zea Mays Linn.* leaf by CLSM. **g,** TEM image of the microstructure of chloroplast. **h,** TEM image of layered nanostructure of thylakoid. **i,** cross-section of the artificial N-doped ZnO photocatalyst system by FESEM.

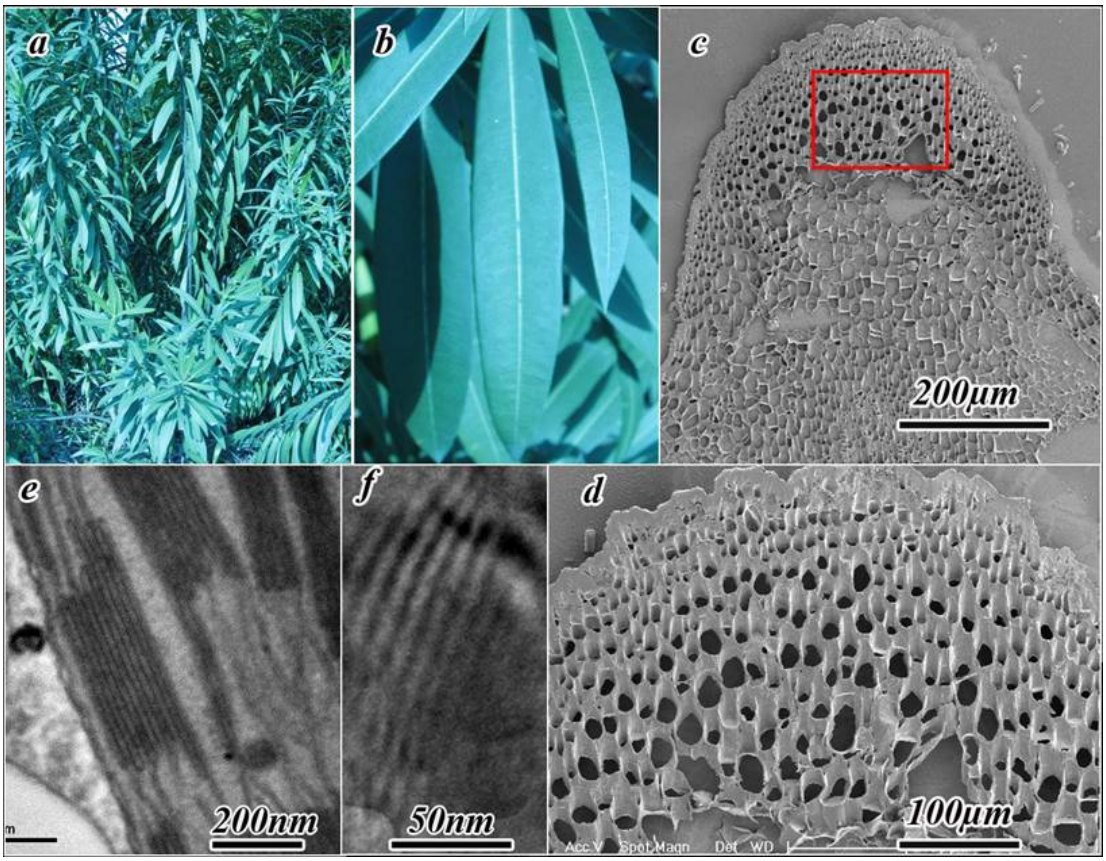

Figure S5. a, Digital picture of *Sweetscented Oleander* Leaf **b,** Digital picture of an individual *Sweetscented Oleander* Leaf. **c,** Cross-section of *Sweetscented Oleander* Leaf by FESEM. **d,** a magnified image of the red square of (c). **e,** TEM image of layered nanostructure of thylakoid in chloroplast. **f,** TEM image of layered nanostructure in the artificial N-doped ZnO photocatalyst system derived from *Sweetscented Oleander* Leaf.

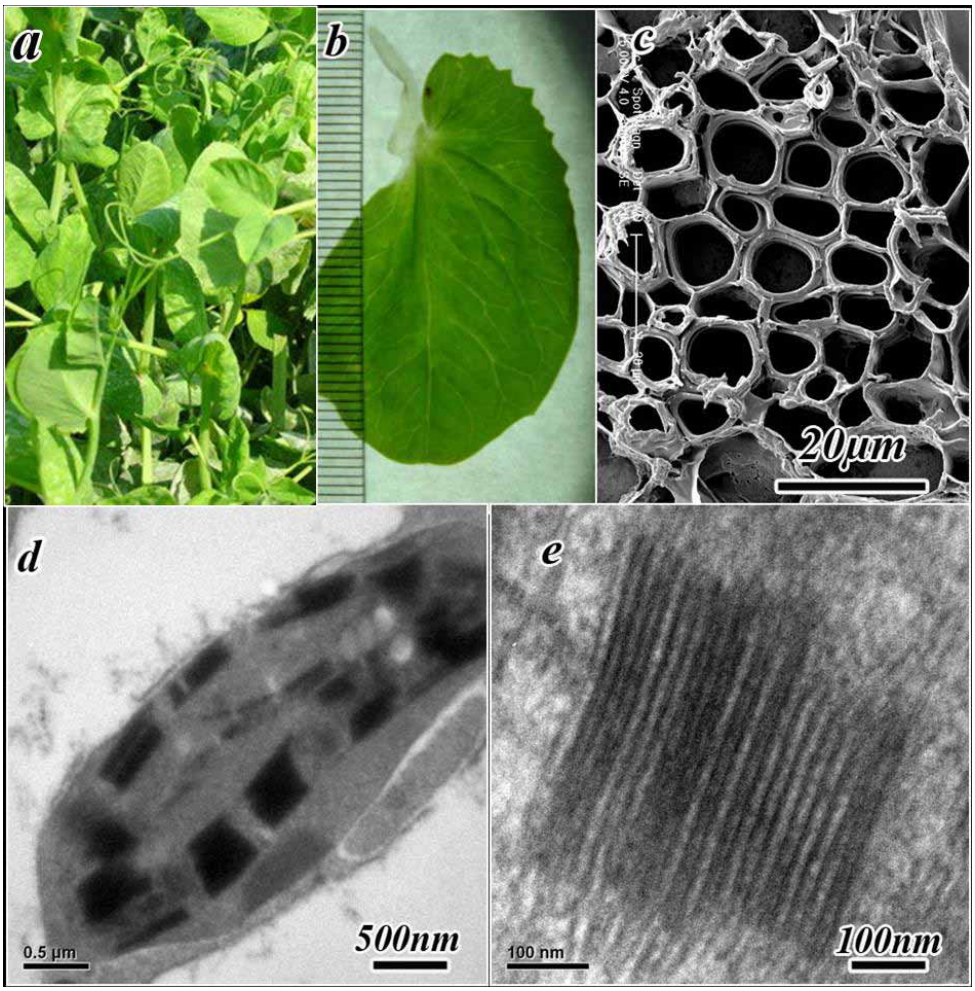

Figure S6. a, Digital picture of *Pea Shoot* Leaf **b,** Digital picture of an individual *Pea Shoot* Leaf. **c,** Cross-section of *Pea Shoot* Leaf by FESEM. **d,** TEM image of the microstructure of chloroplast. **e,** TEM image of layered nanostructure of thylakoid.

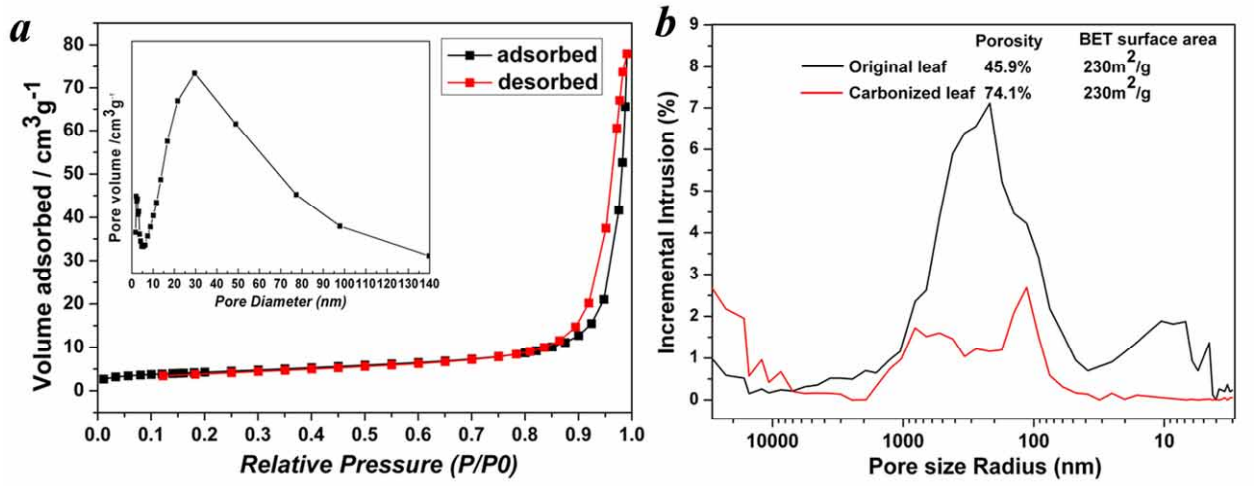

Figure S7. a, Nitrogen adsorption-desorption isotherm and BJH pore size distribution plot (inset) of artificial N-doped ZnO photocatalyst system derived from *Cinnamomum camphora* leaf .**b,** Pore size distribution plot of original leaf and carbonized leaf by intrusive mercury method, with the inset of the corresponding data of porosity and BET surface area.

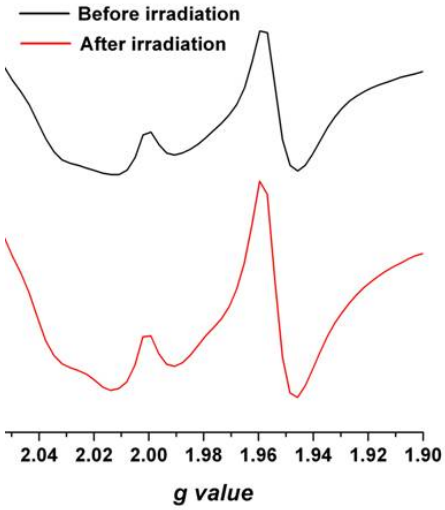

Figure S8. EPR spectra of common ZnO under 100K, showing no significant changes before and after sunlight irradiation for 30min.

Samples	N 1s	
	BE (ev)	atom %
N-ZnO derived from Cinnamomum camphora leaf	397.3	0.46
N-ZnO derived from Zea Mays Linn. leaf	396.4	0.27
N-ZnO derived from Sweetscented Oleander Leaf	399.2	0.2
N-ZnO derived from Pea Shoot Leaf	397.4	0.38

Table S1: Binding Energies and atomic ratios for N in N-doped ZnO derived from different leaves.

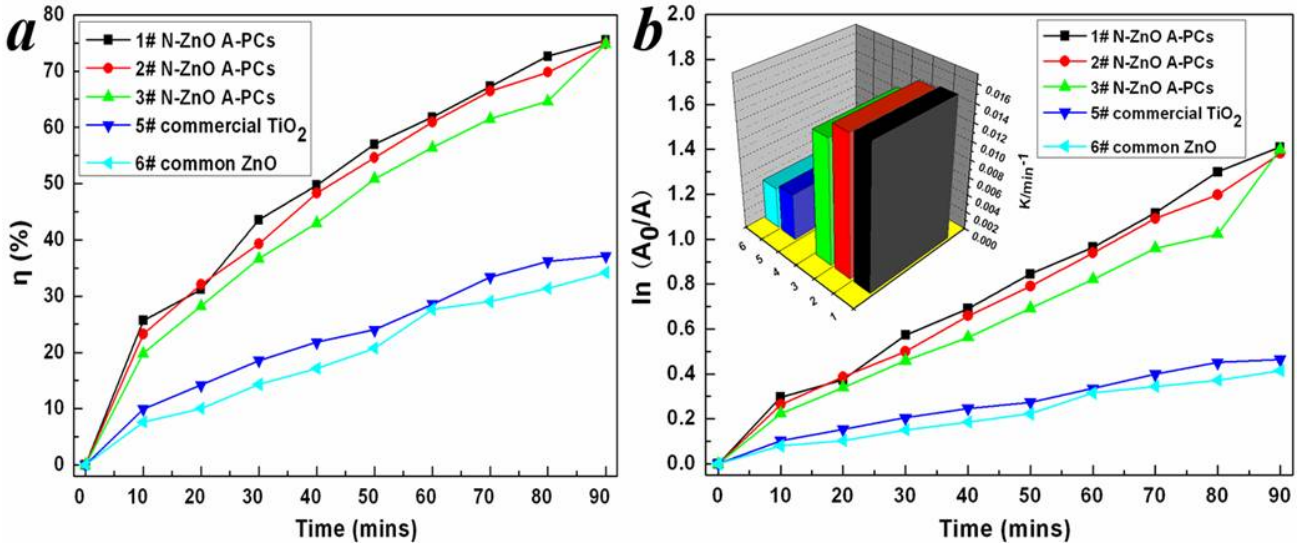

Figure S9. (a) Degradation efficiency change of MB with the time UV irradiation. (b) Kinetic study of degradation of MB in the presence of the samples under UV irradiation, with the inset of the degradation rate of the samples under UV irradiation. 1#-3# samples represent N-ZnO artificial PCs derived from Cinnamomum Camphora, Pea Shoot, Zea Mays Linn., respectively.

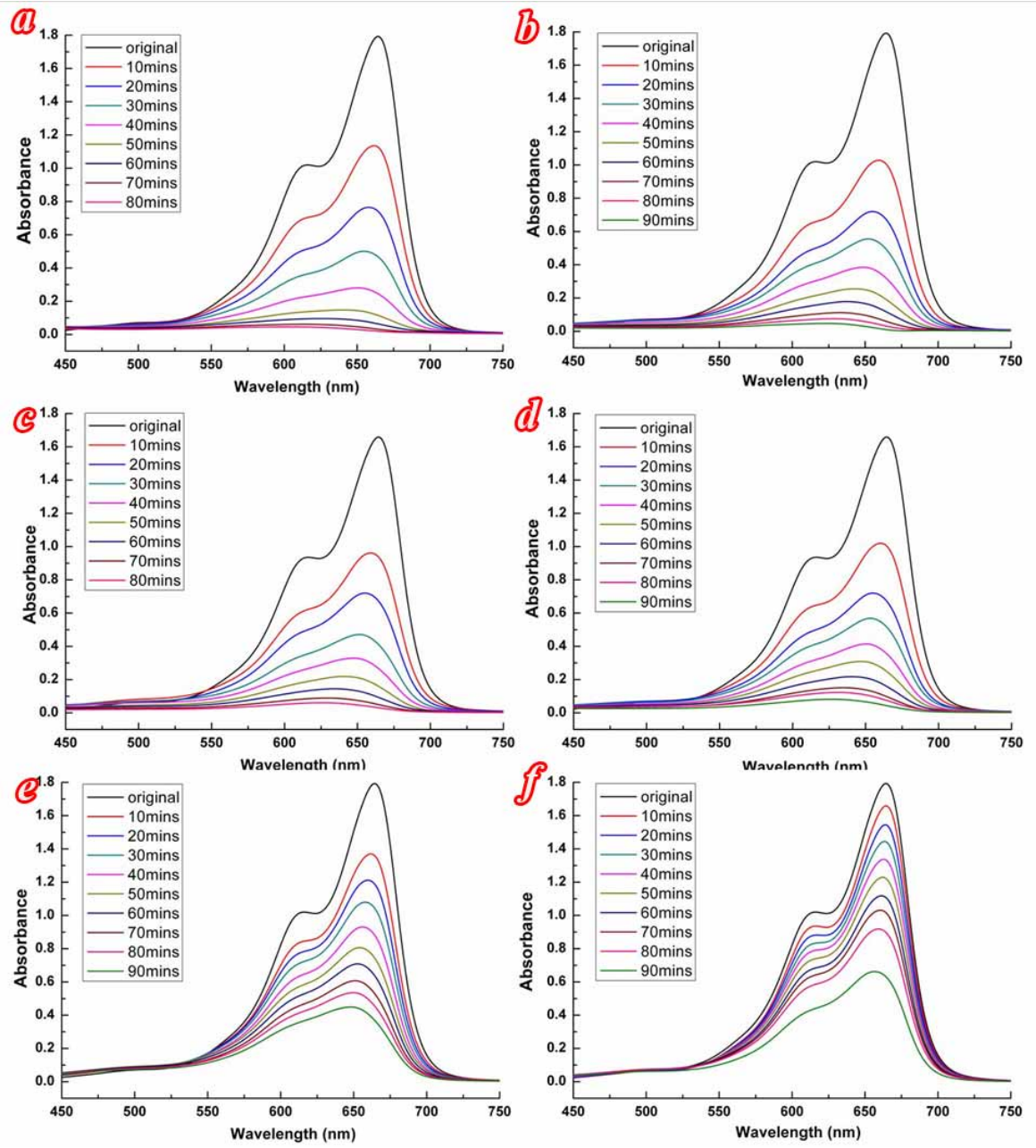

Figure S10. The corresponding UV-vis absorbance spectra of MB with a function of time under solar irradiation. **a,** 1# N-ZnO A-PCs templated with Cinnamomum Camphora, **b,** 2# N-ZnO A-PCs templated with Pea Shoot, **c,** 3# N-ZnO A-PCs templated with Zea Mays Linn., **d,** 4# N-ZnO A-PCs templated with Sweetscented Oleander, **e,** 5# commercial TiO2, **f,** 6# common ZnO without templates.