

## Supplementary Information

# Photocatalytic Decolorization and Biocidal Applications of Nonmetal Doped TiO<sub>2</sub>: Isotherm, Kinetic Modeling and Insilco Molecular Docking Studies

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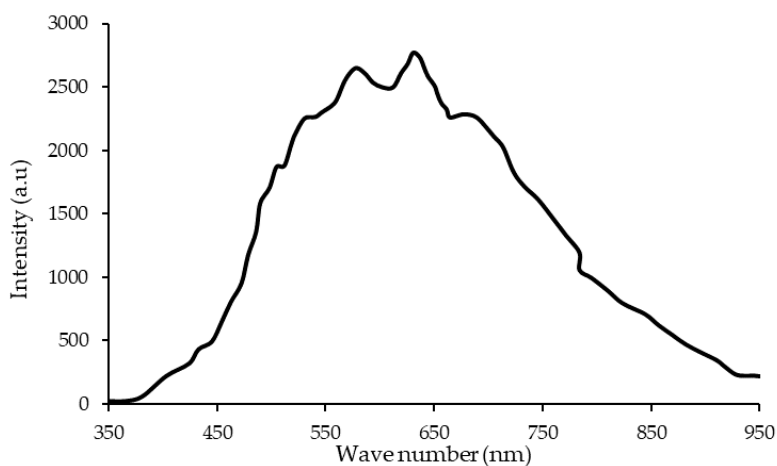
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**Figure S1.** Light spectrum of halogen lamp (Hi Luminar-Germany) as a light source (500 W) with a light intensity of 30798 lux.

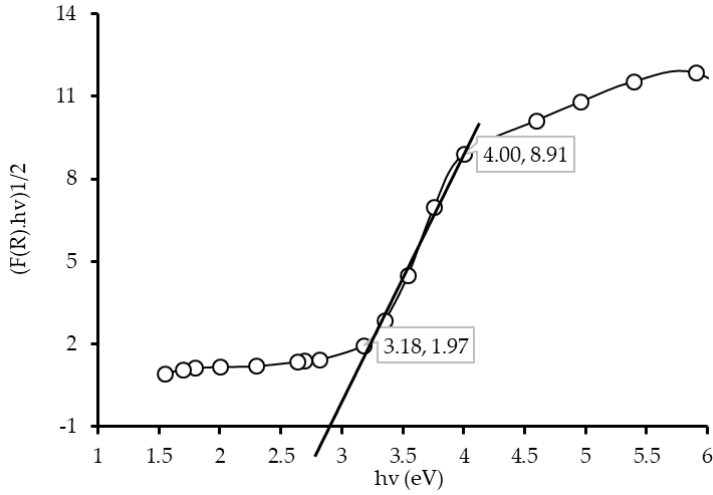


Figure S2. Bandgap estimation of 20N-TiO<sub>2</sub>-300 from DRS spectra.

The bandgap of 20N-TiO<sub>2</sub>-300 was obtained by extrapolating the tangent of the graph in the low energy range (hv) axis using,

$$y = mx + c \quad (1)$$

$x_1$ ,  $x_2$ ,  $y_1$  and  $y_2$  were obtained from the linear curve of 20N-TiO<sub>2</sub>-300

$$x_1 = 3.18 \quad x_2 = 4.00$$

$$y_1 = 1.97 \quad y_2 = 8.91$$

To find out value of m,

$$m = \frac{y_1 - y_2}{x_1 - x_2} \quad (2)$$

$$m = 8.4634$$

To find out value of c,

$$-c = y - mx$$

By putting the value of  $y_2$ ,  $x_2$  and m, the value of c is

$$c = -24.94$$

Therefore, inserting the value of m and c in equation 1

$$y = 8.4634x + (-24.94)$$

When  $y=0$ ,  $x = 2.95$

So, the estimated bandgap for 20N-TiO<sub>2</sub>-300 is 2.95 eV