

**Enhanced Photocatalysis and Bacterio-inhibition in Nb<sub>2</sub>O<sub>5</sub> via Versatile  
Doping of Metal (Sr, Y, Zr, Ag): A Critical assessment**

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## Electronic supplementary information

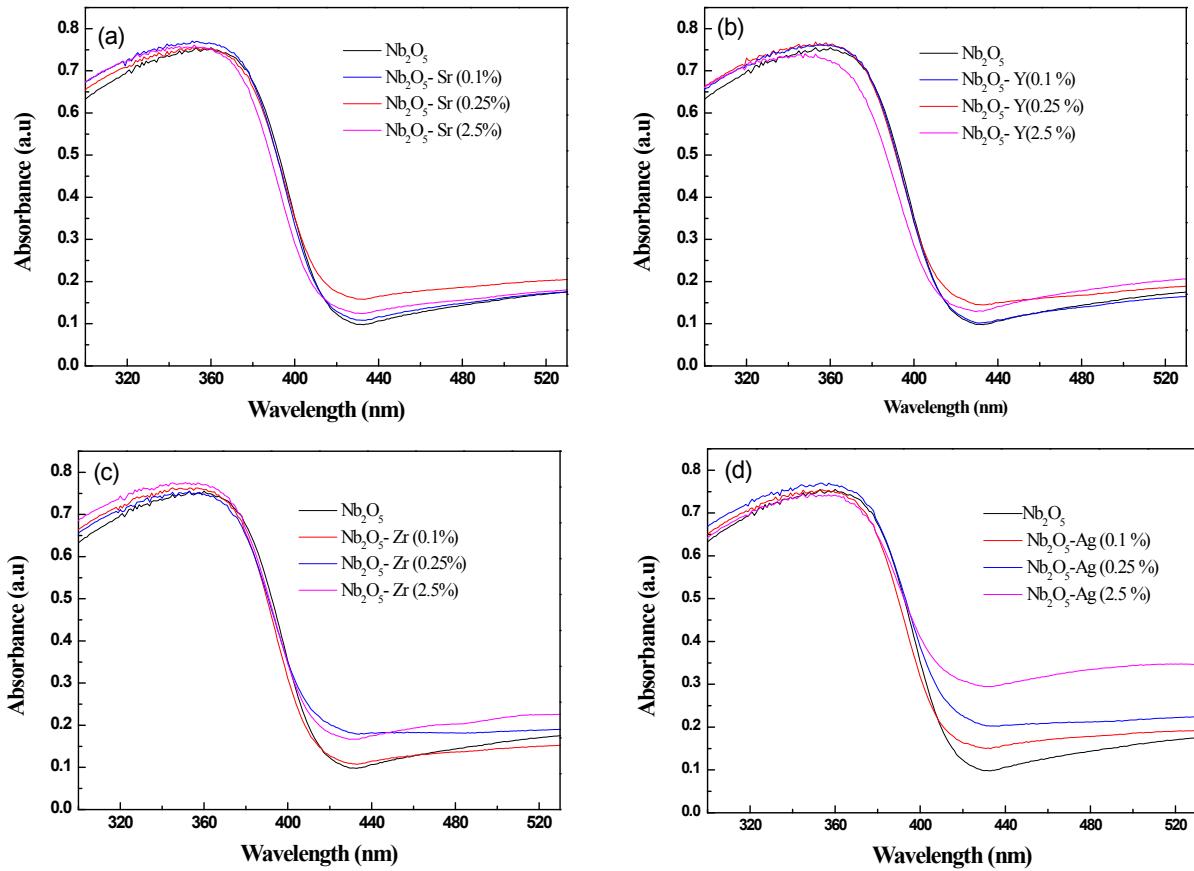


Fig. S1. Influence of varying concentration of dopants viz. (a) Sr (b) Y, (c) Zr, (d) Ag on absorption spectra of  $\text{Nb}_2\text{O}_5$

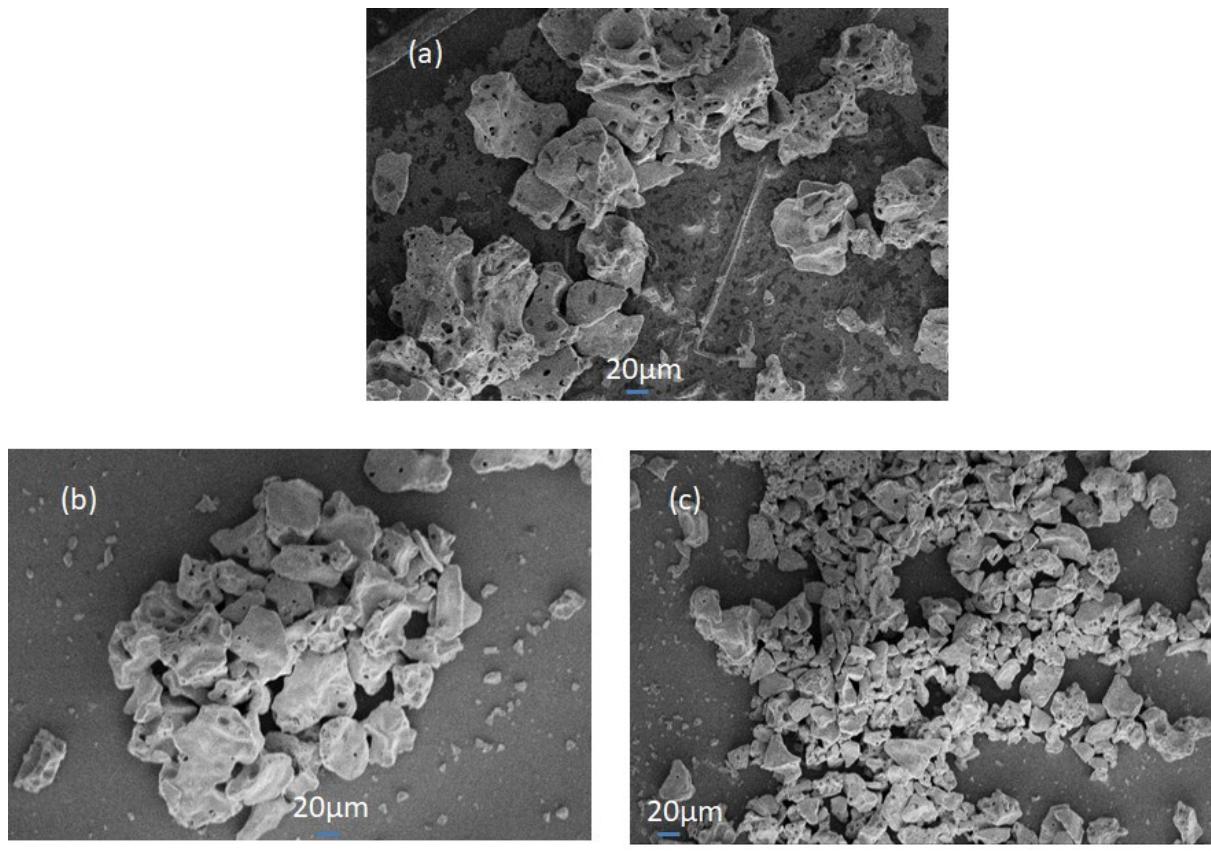


Fig. S2 SEM images of (a) Y (0.25%) Nb<sub>2</sub>O<sub>5</sub>, (b) Zr (0.25%) Nb<sub>2</sub>O<sub>5</sub> and (c) Ag (0.1%) Nb<sub>2</sub>O<sub>5</sub>

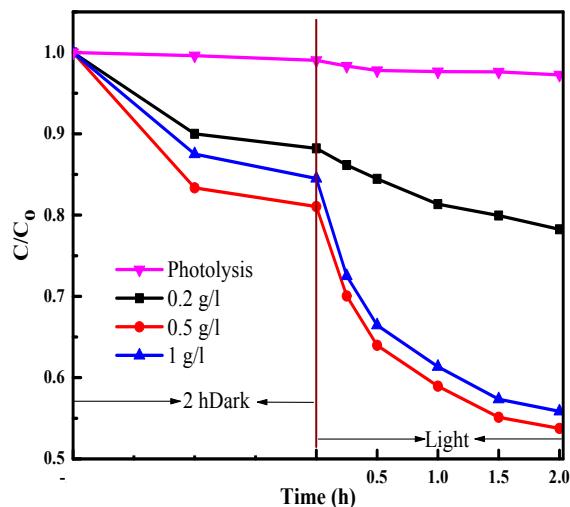


Fig. S3 Effect of Nb<sub>2</sub>O<sub>5</sub> loading for MB degradation with initial concentration of 15 ppm, pH 7

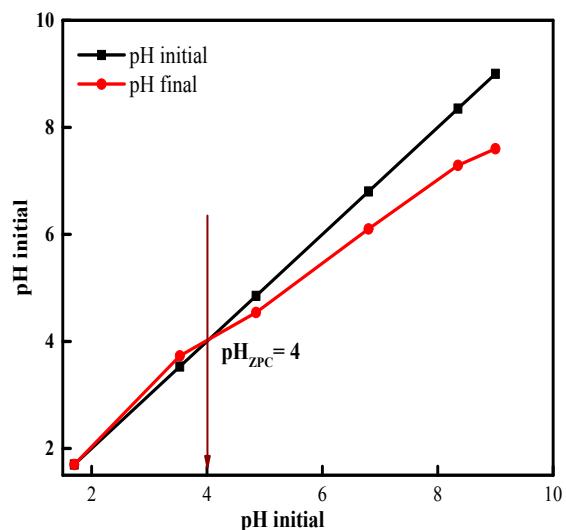


Fig. S4 Fig. 9 Zero-point charge of Nb<sub>2</sub>O<sub>5</sub>

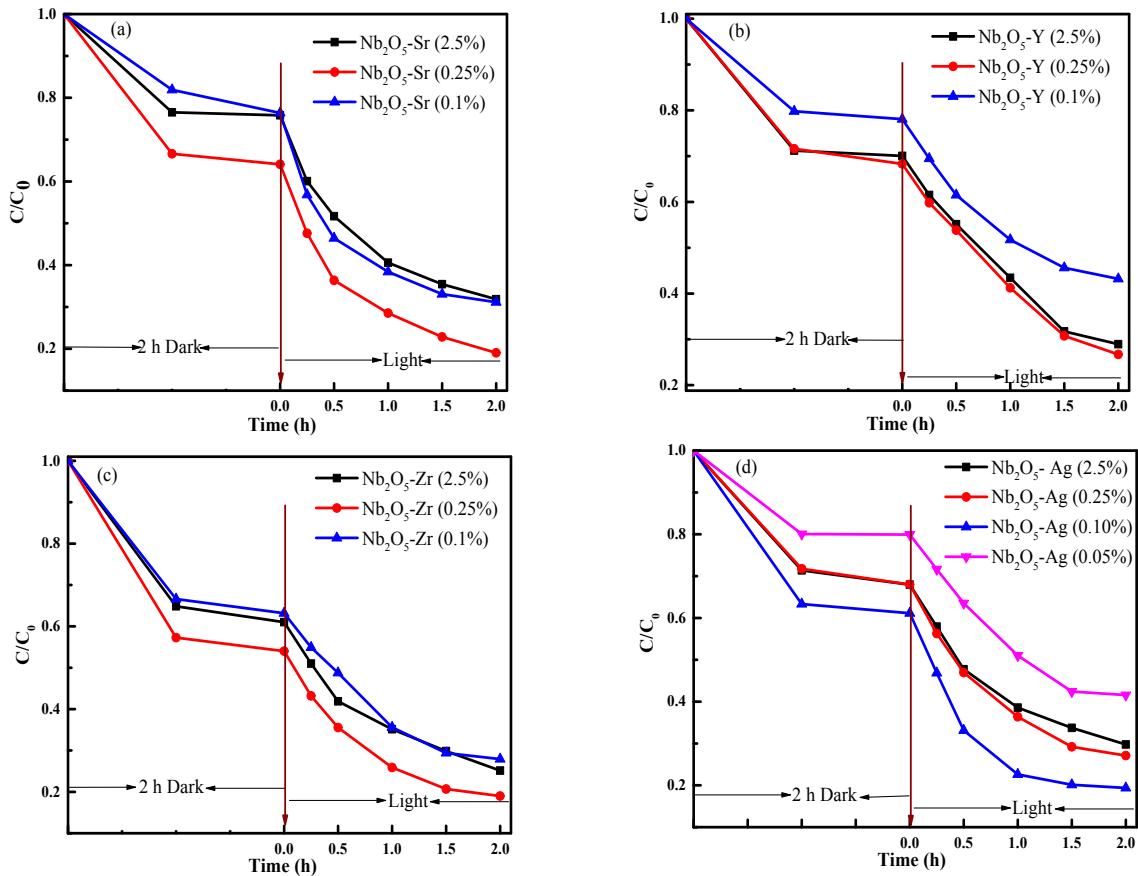


Fig. S5 Effect of dopant concentration (a) strontium, (b) yttrium, (c) zirconium, (d) silver into  $\text{Nb}_2\text{O}_5$  for MB degradation with an initial concentration of 15 ppm

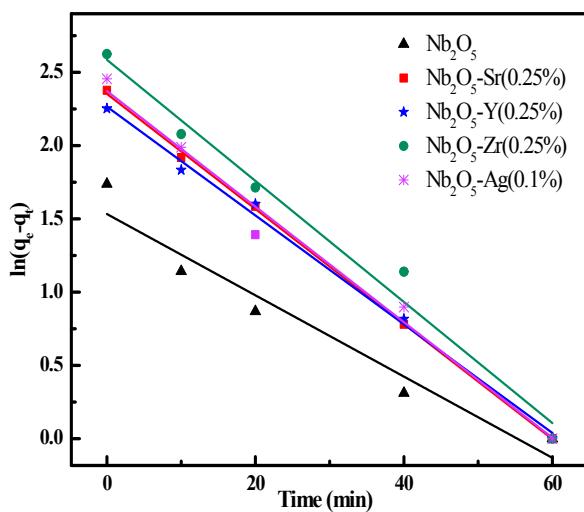


Fig. S6 Adsorption kinetics of MB on metal doped  $\text{Nb}_2\text{O}_5$

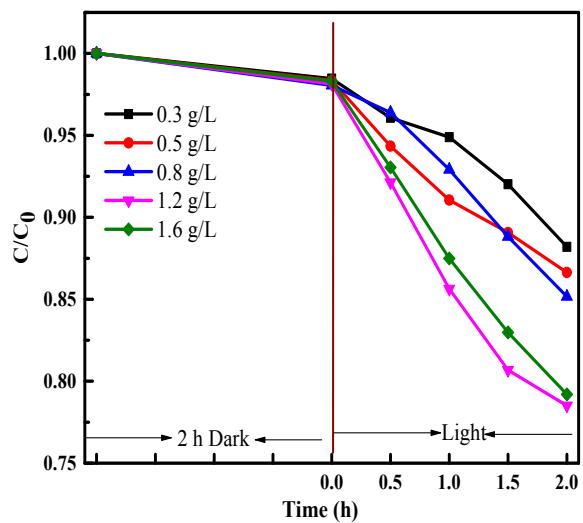


Fig. S7 Effect of  $\text{Nb}_2\text{O}_5$  loading on the photocatalytic degradation of OG

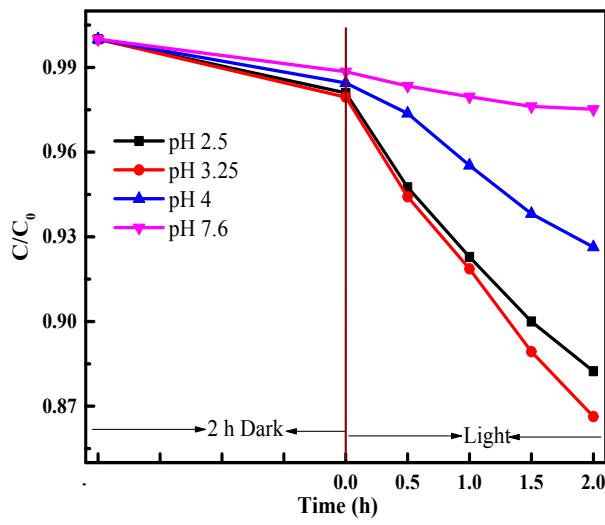


Fig. S8 Effect of pH on the degradation of OG

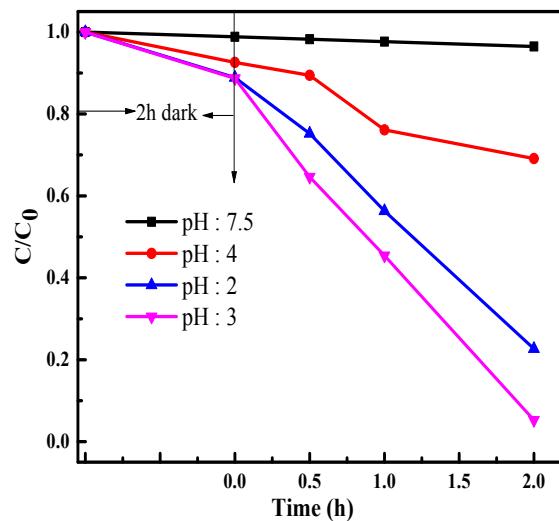


Fig. S9 Effect of pH for IC degradation

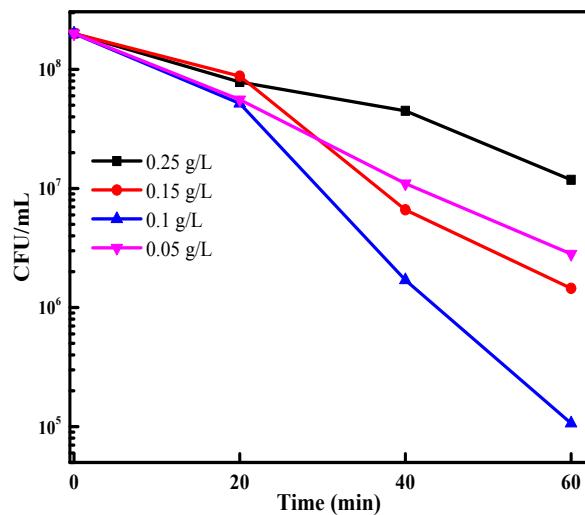


Fig. S10 Effect of catalyst Sr (0.25%) Nb<sub>2</sub>O<sub>5</sub> loading on *E. coli* inactivation

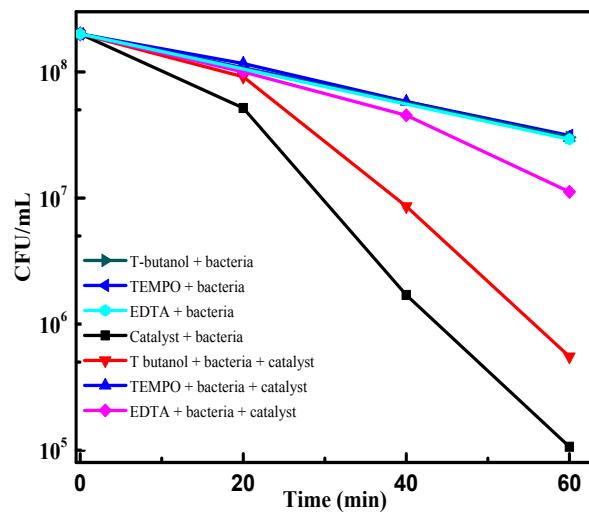


Fig. S11 Radical trapping experiment with scavengers and *E. coli* as pollutant

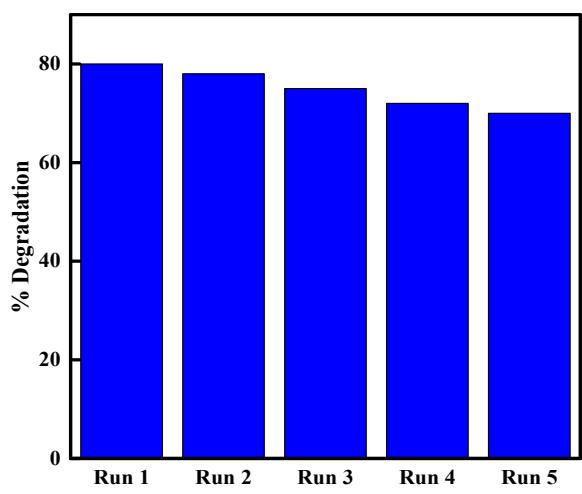


Fig. S12 Reusability of  $\text{Nb}_2\text{O}_5$ -Sr (0.25%) for 5 cycles towards MB photodegradation

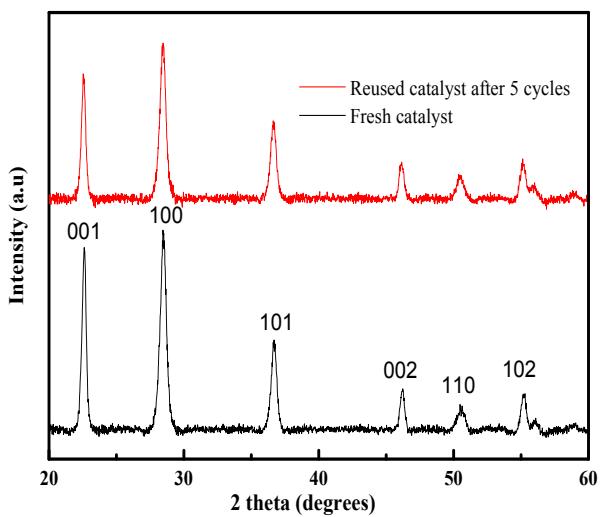


Fig. S13 XRD pattern of used and fresh catalyst