

## SUPPLEMENTARY MATERIAL

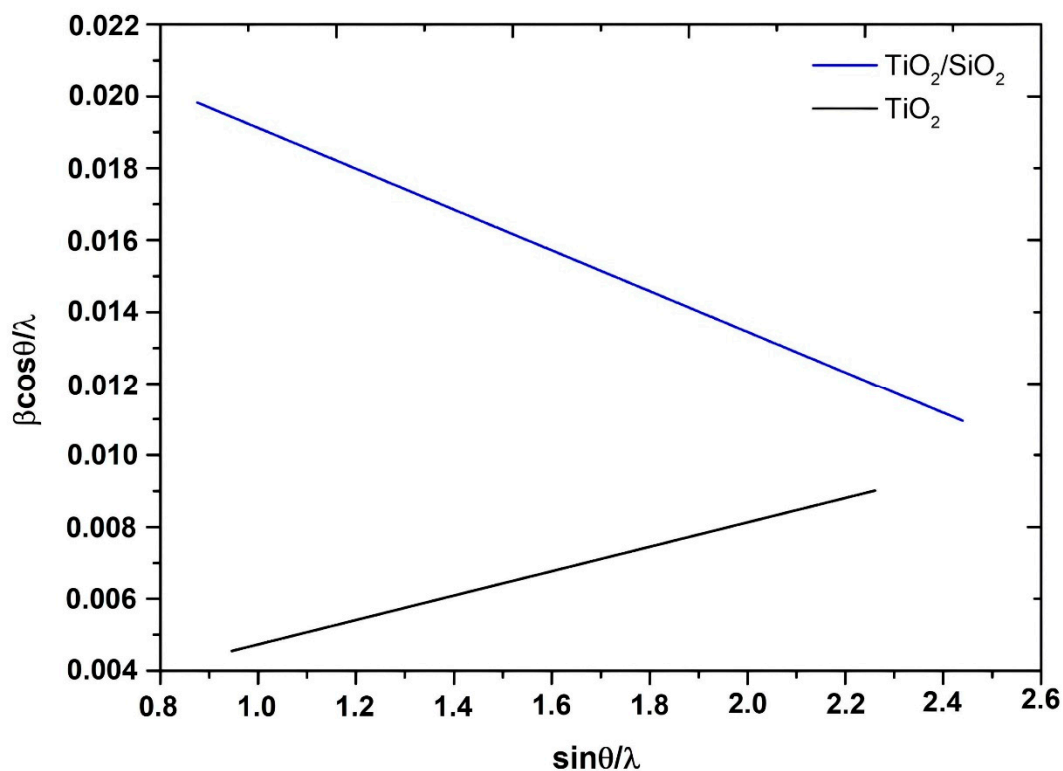


Figure S1. Williamsons-Hall plots of the as-studied  $\text{TiO}_2/\text{SiO}_2$  powder.

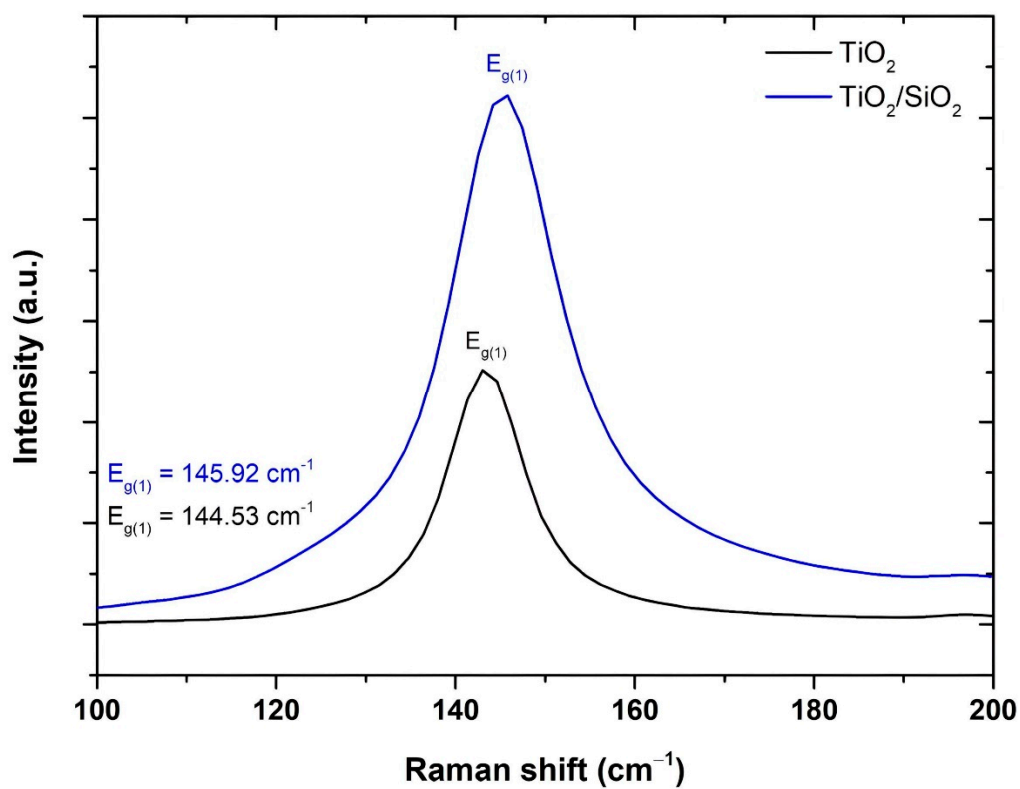


Figure S2. Magnification of  $E_{g(1)}$  Raman active mode of anatase  $\text{TiO}_2$  phase of the studied composite powder.

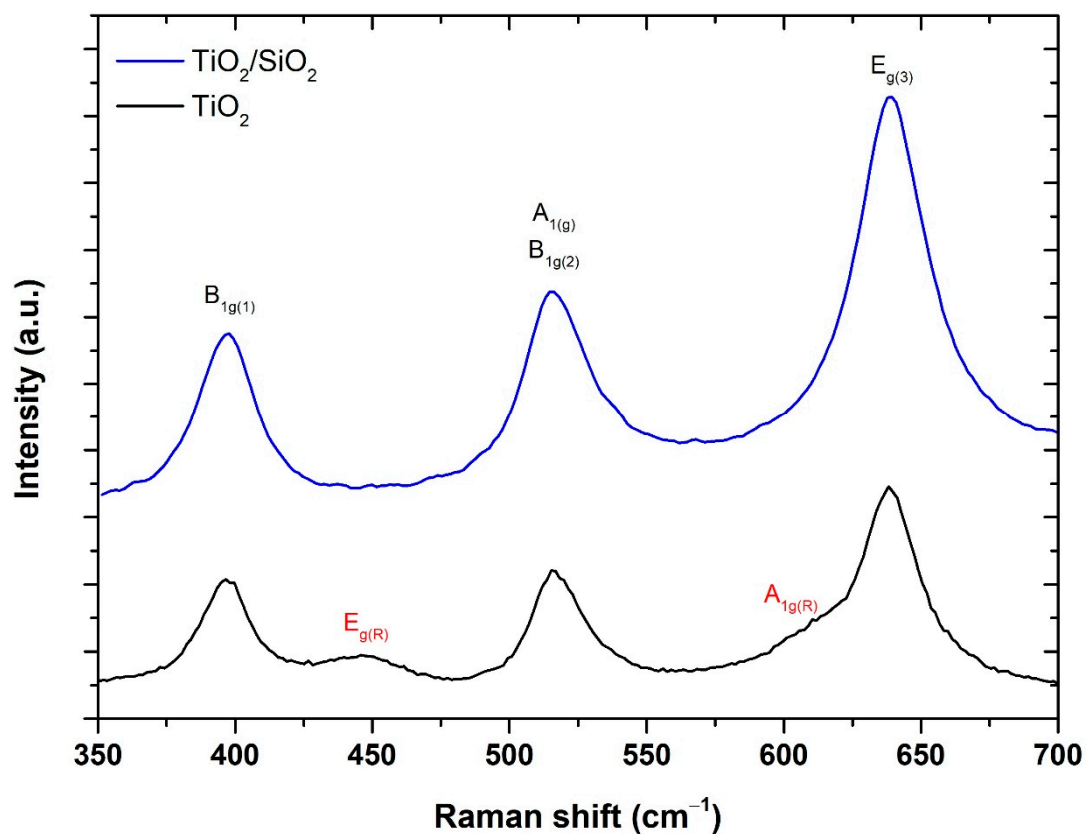


Figure S3. Magnification of 350-700  $\text{cm}^{-1}$  Raman spectra region of the studied composite powder.

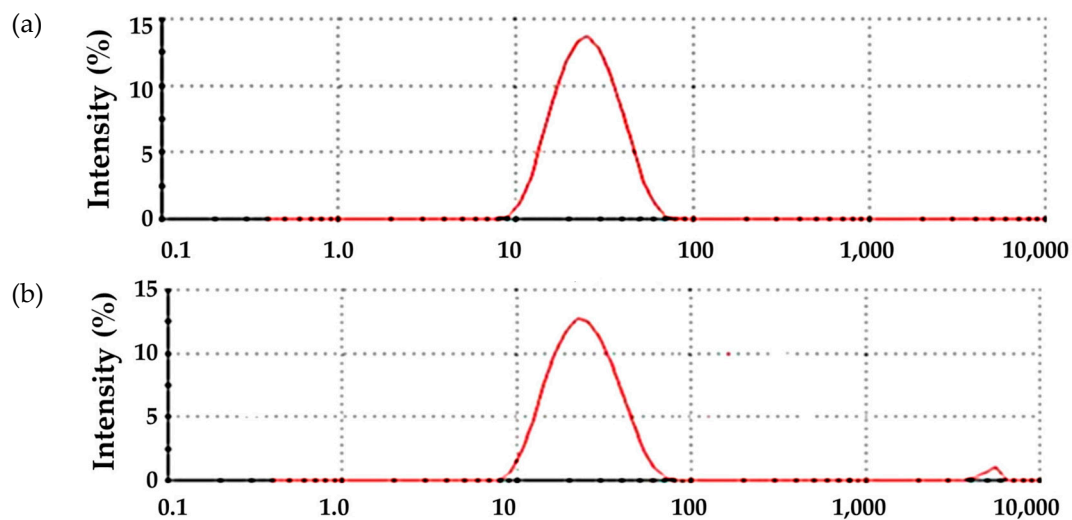
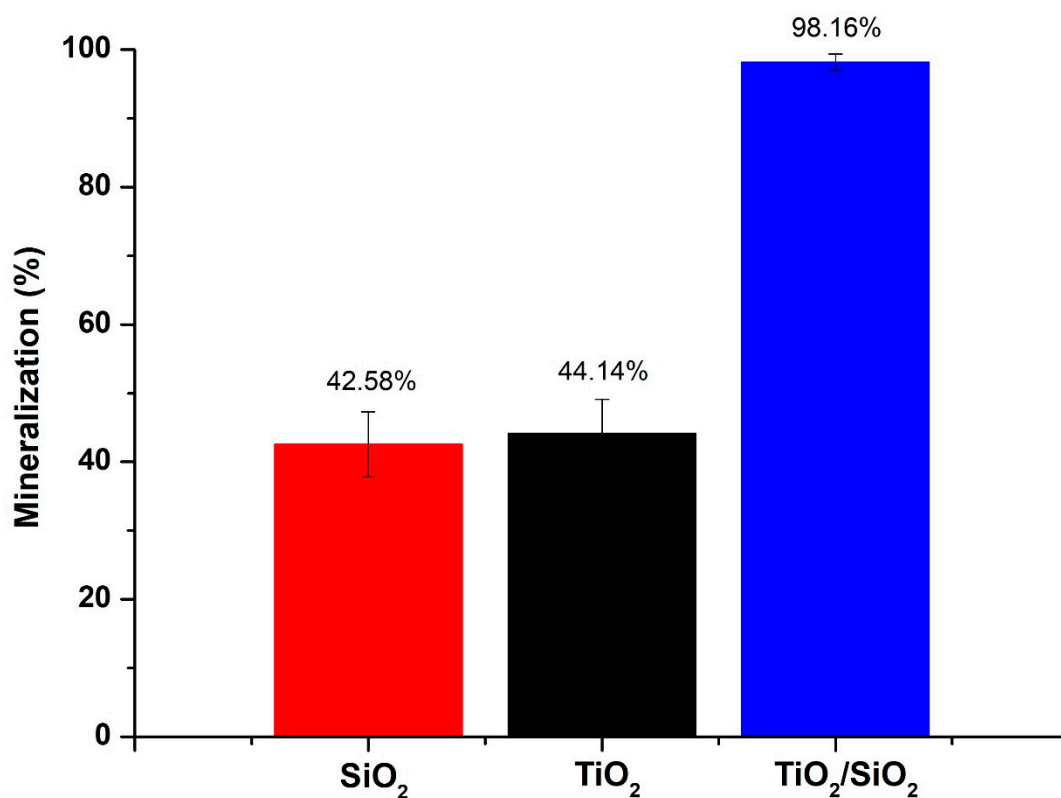
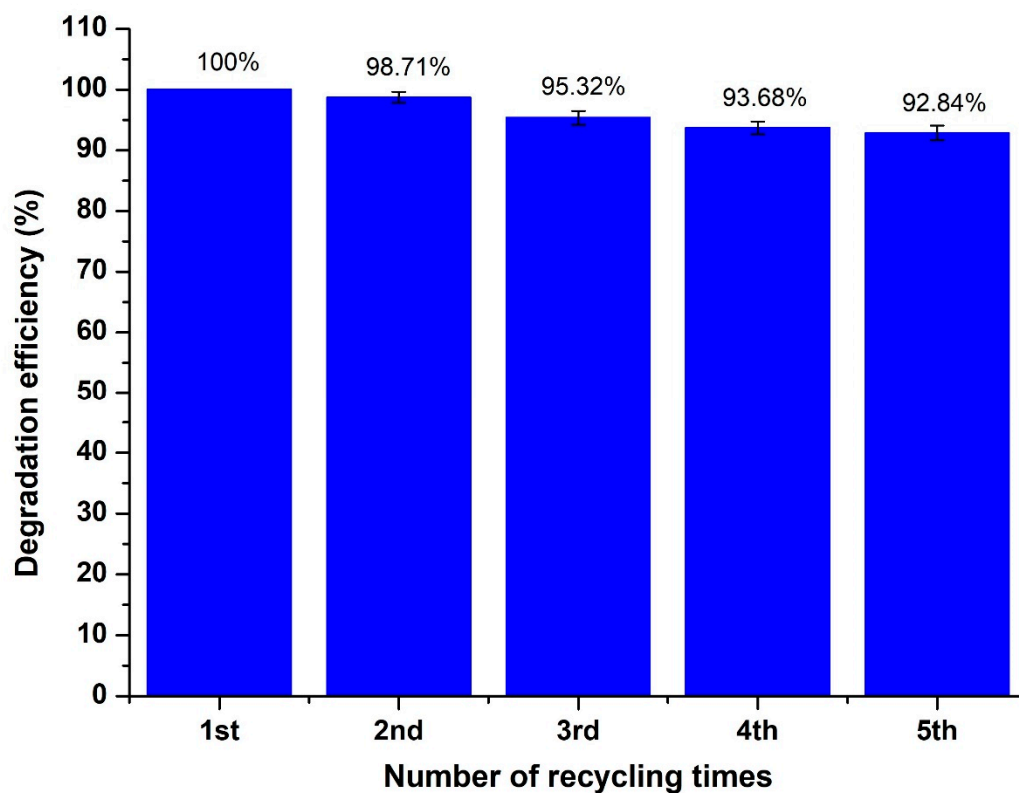


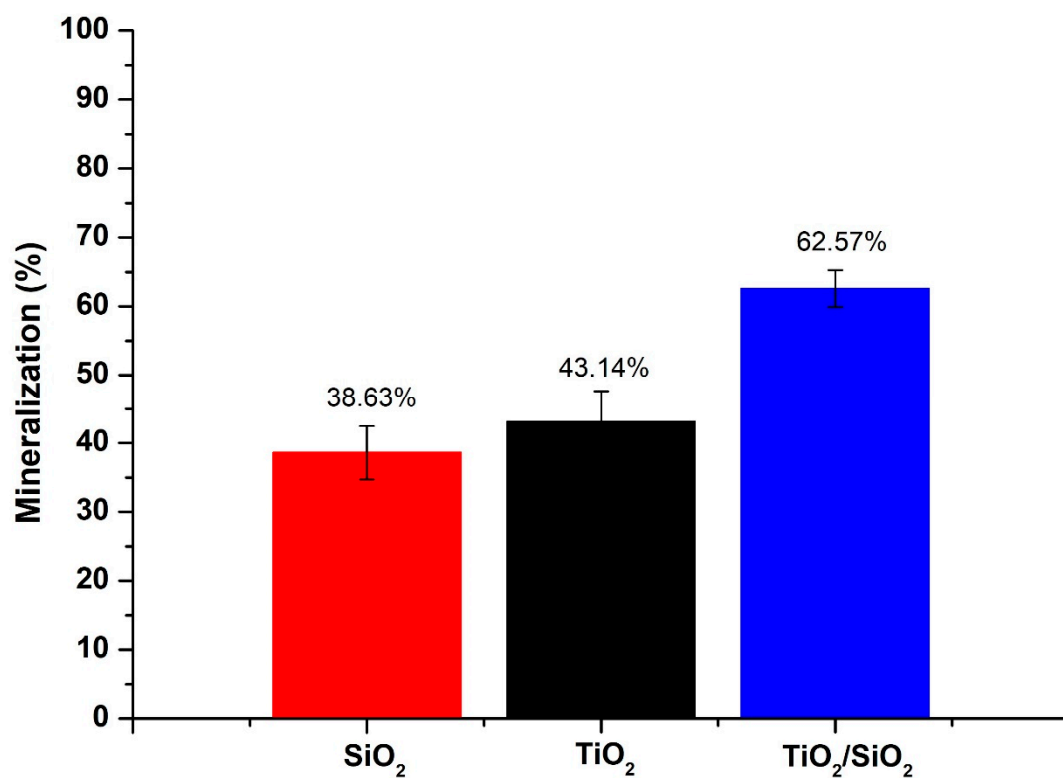
Figure S4. Size distribution of the aqueous dispersion solutions of: (a)  $\text{TiO}_2/\text{SiO}_2$  and (b) pure  $\text{TiO}_2$  powders.



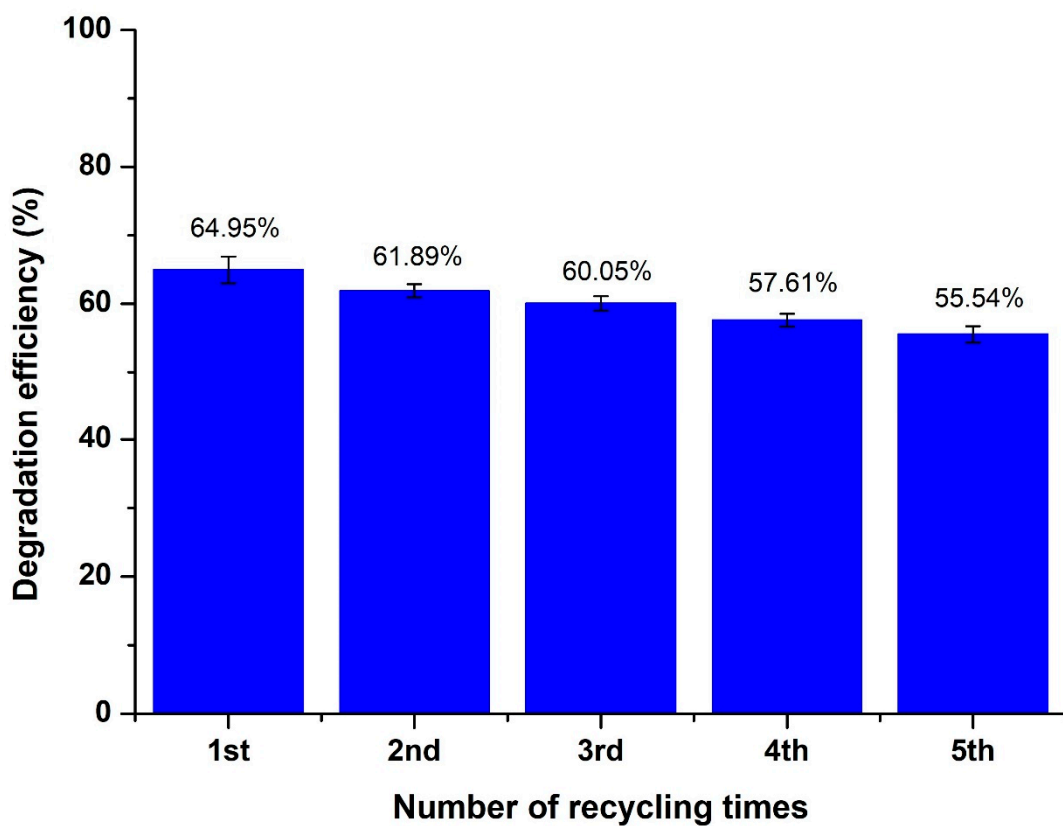
**Figure S5.** Mineralization (%) of RhB for the as-synthesized composite powder, obtained through TOC analysis, after the implementation of the photocatalytic experimental study upon visible-light irradiation.



**Figure S6.** Reusability efficiency of the TiO<sub>2</sub>/SiO<sub>2</sub> composite powder after 5 experimental photocatalytic cycles.



**Figure S7.** Mineralization (%) of phenol for the as-synthesized composite powder, obtained through TOC analysis, post photocatalytic experimental study upon visible-light irradiation.



**Figure S8.** Reusability efficiency of the TiO<sub>2</sub>/SiO<sub>2</sub> composite powder after 5 experimental photocatalytic cycles.