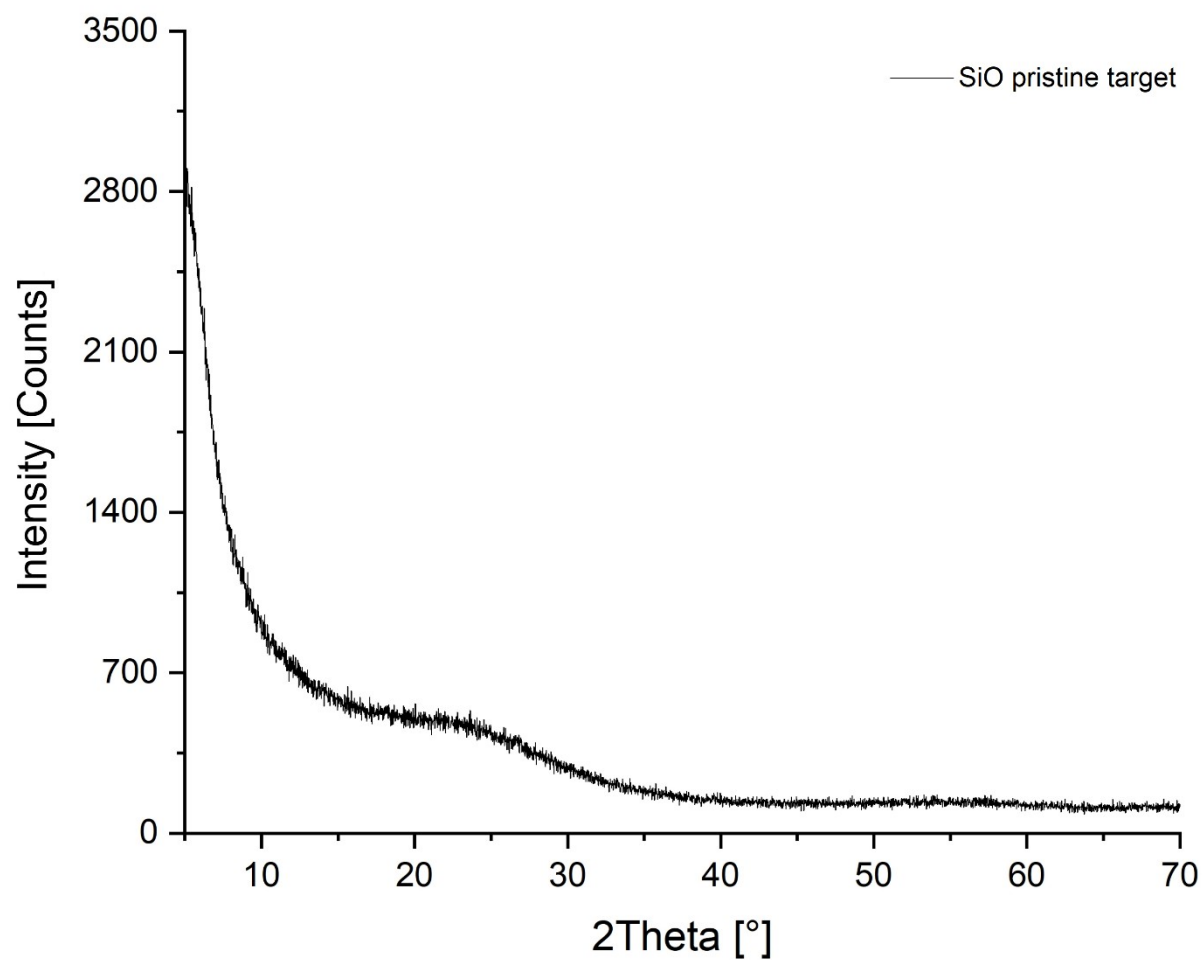
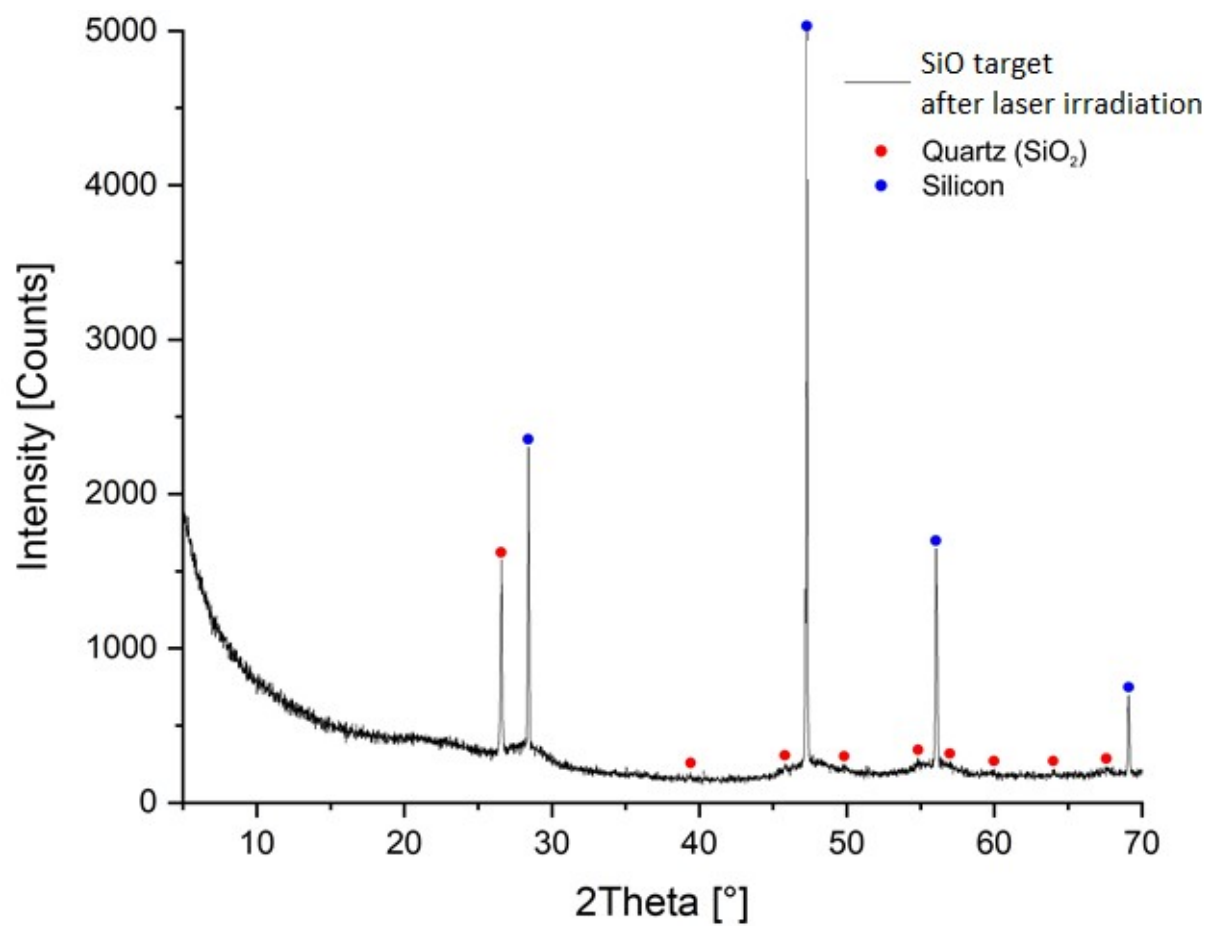


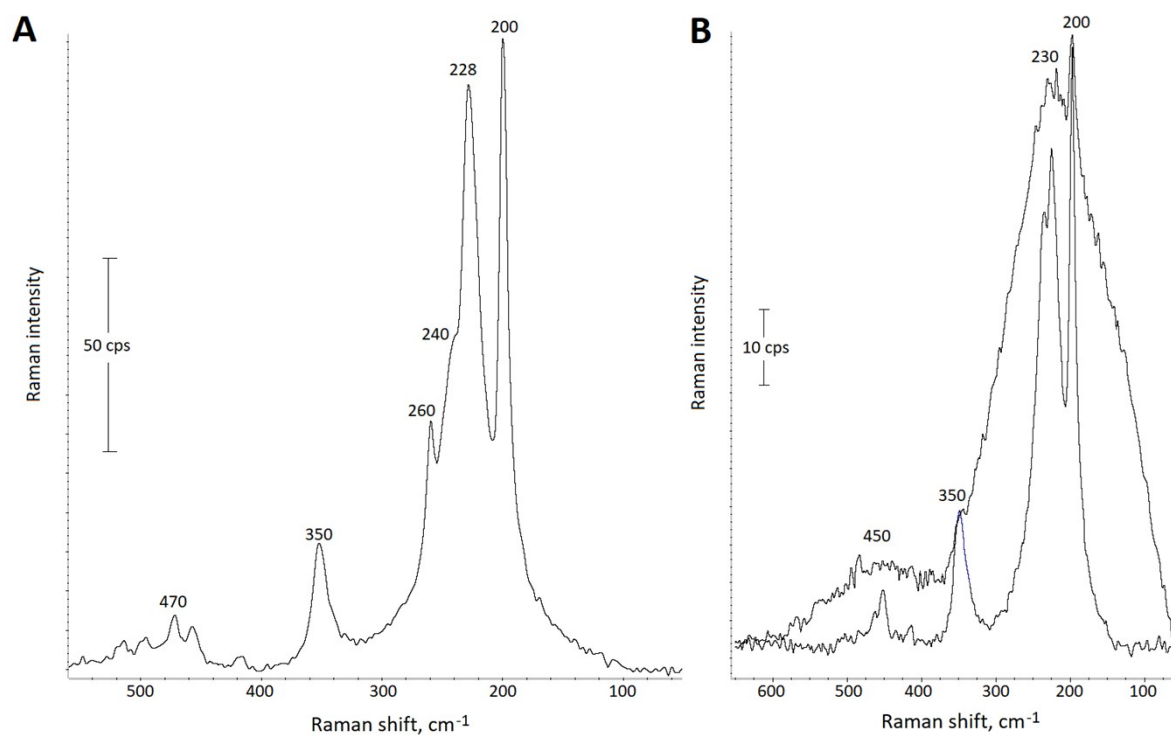
**S1.** XRD spectra of pristine TiO target (spectra of pristine and irradiated target show the same phase composition)



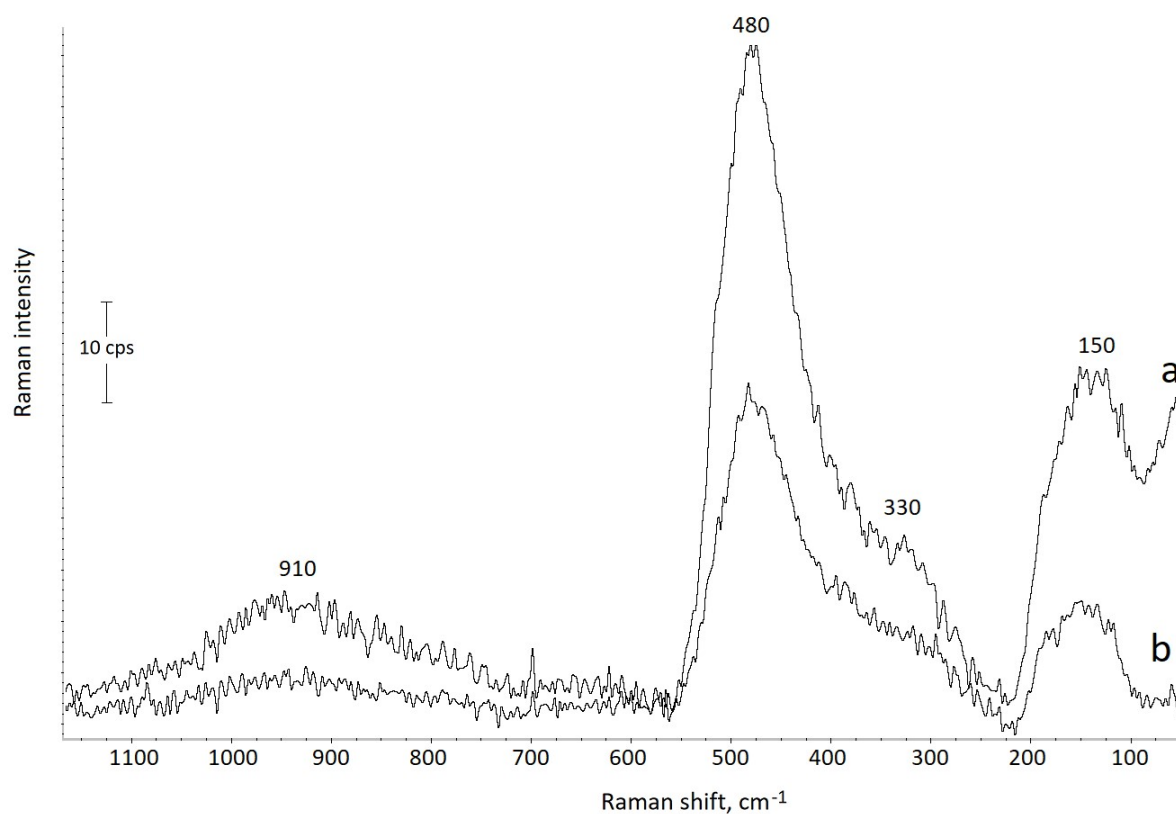
**S2.** XRD spectra of pristine SiO target (measured before pulsed laser irradiation)



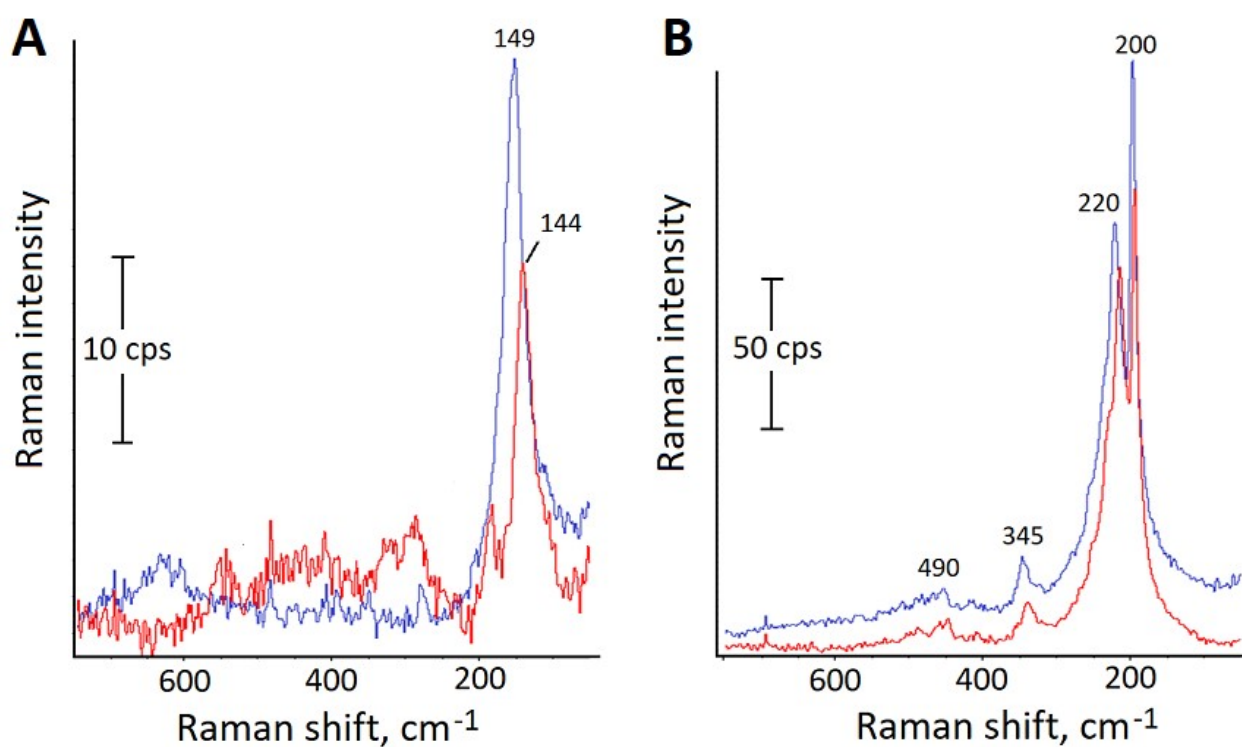
**S3.** XRD spectra of irradiated SiO target (measured after pulsed laser irradiation)



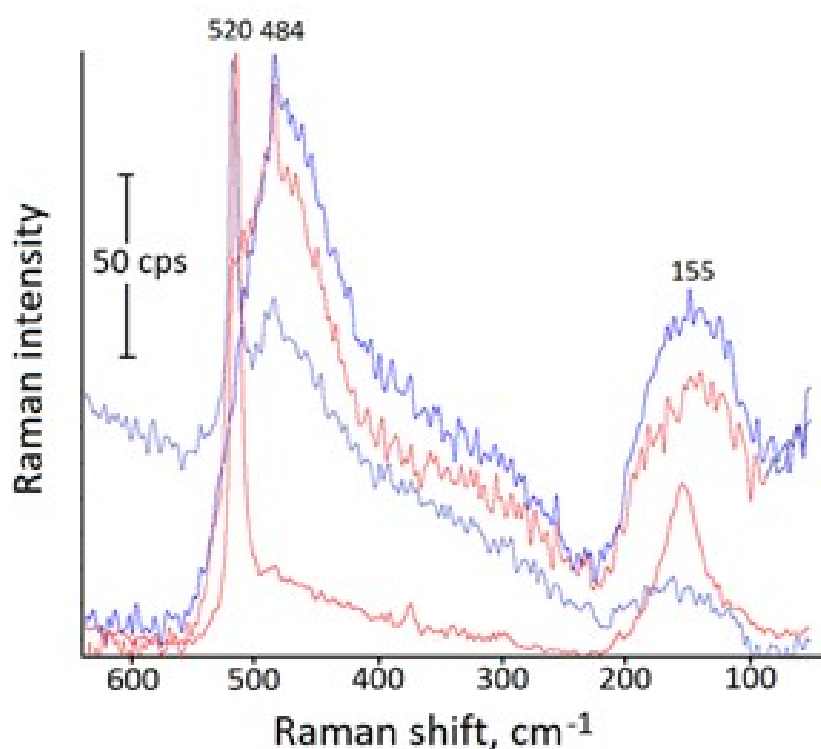
**S4.** Raman spectra of pristine (A) and LAL-modified (B) titanium monoxide target demonstrating crystalline monoclinic TiO (A, B) and amorphous TiO (B).



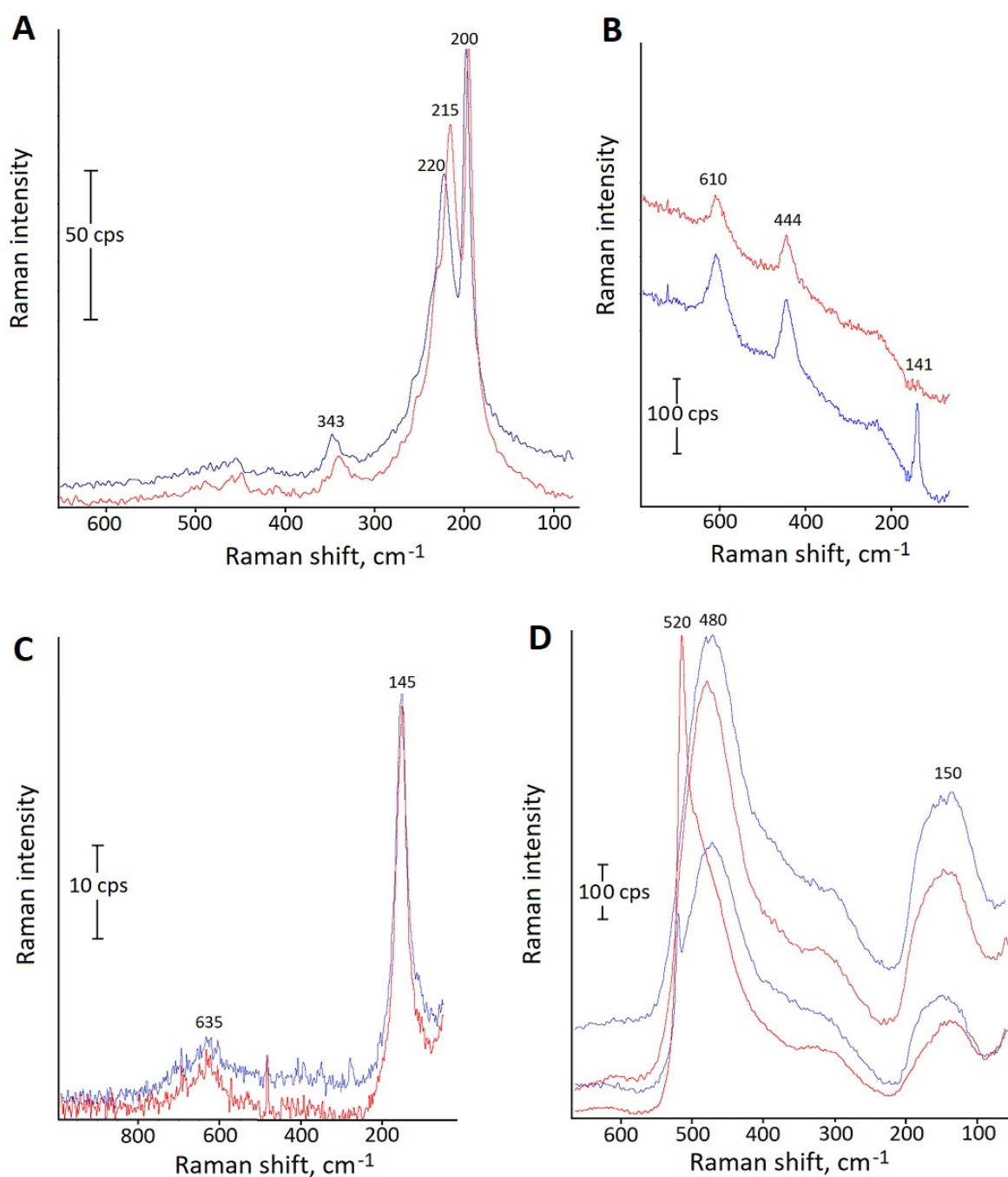
**S5.** Raman spectra of pristine silicon monoxide target (a) and LAL-modified SiO target (b).



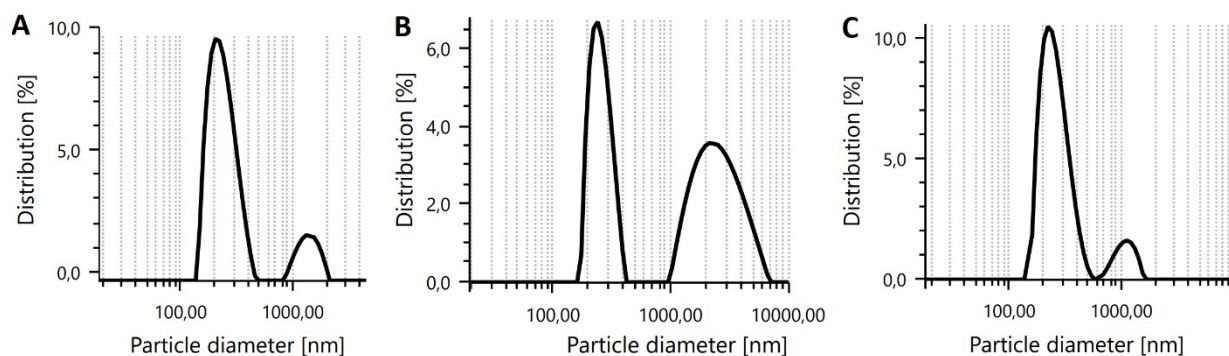
**S6.** Raman spectra of TiO-derived residue from ethanol (red line) and water (blue line) revealing anatase phase (A) and titanium monoxide (B).



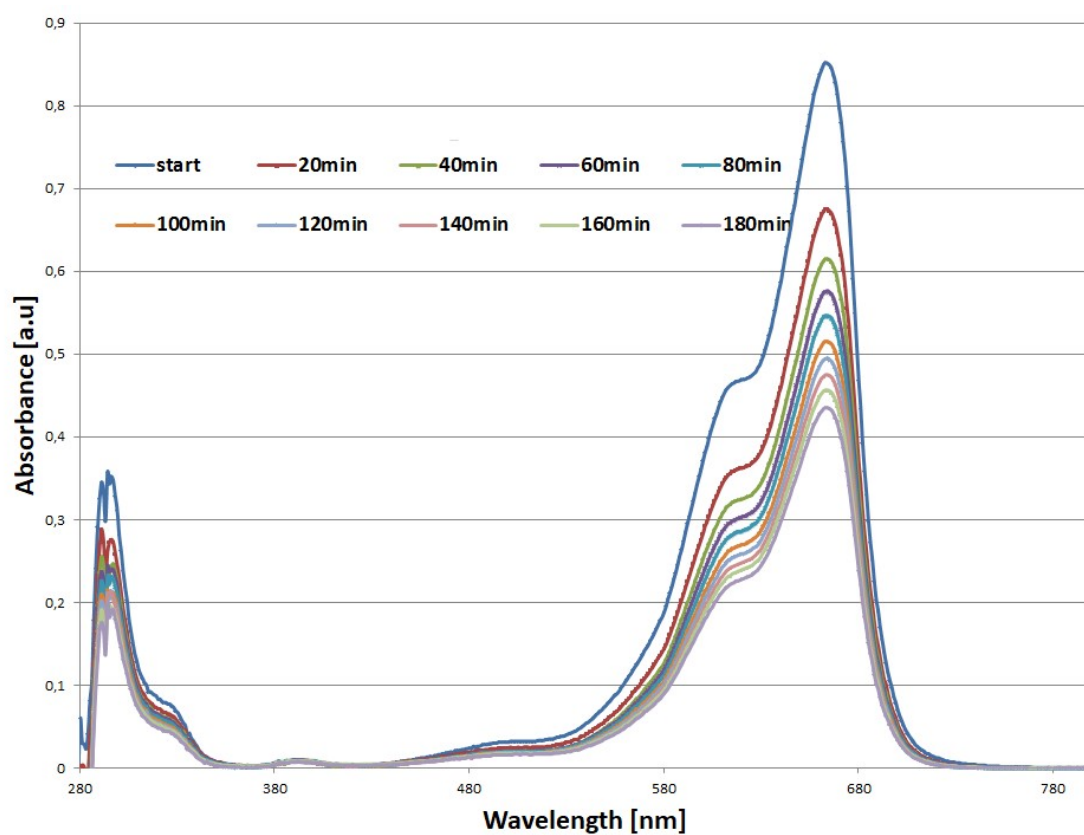
**S7.** Typical Raman spectra of SiO-derived residue from ethanol (red line) and from water (blue line) revealing presence of crystalline Si, nanocrystalline Si and/or  $\text{SiO}_2/\text{SiO}$  and amorphous Si phase



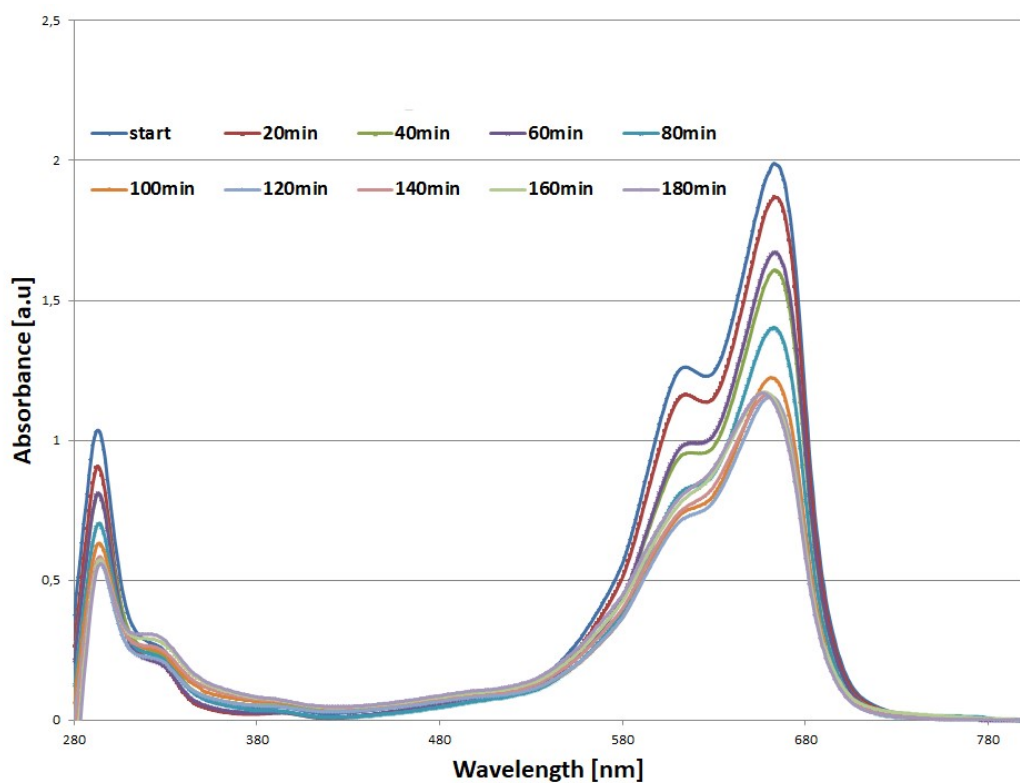
**S8.** Raman spectra of TiO-SiO-derived residues from mixed ethanolic sols (red line) and mixed aquatic sols (blue line) reveal the presence of titanium monoxide (A), rutile (B), anatase (C) crystalline Si, nanocrystalline Si and/or SiO<sub>2</sub>/SiO and amorphous Si phase (D).



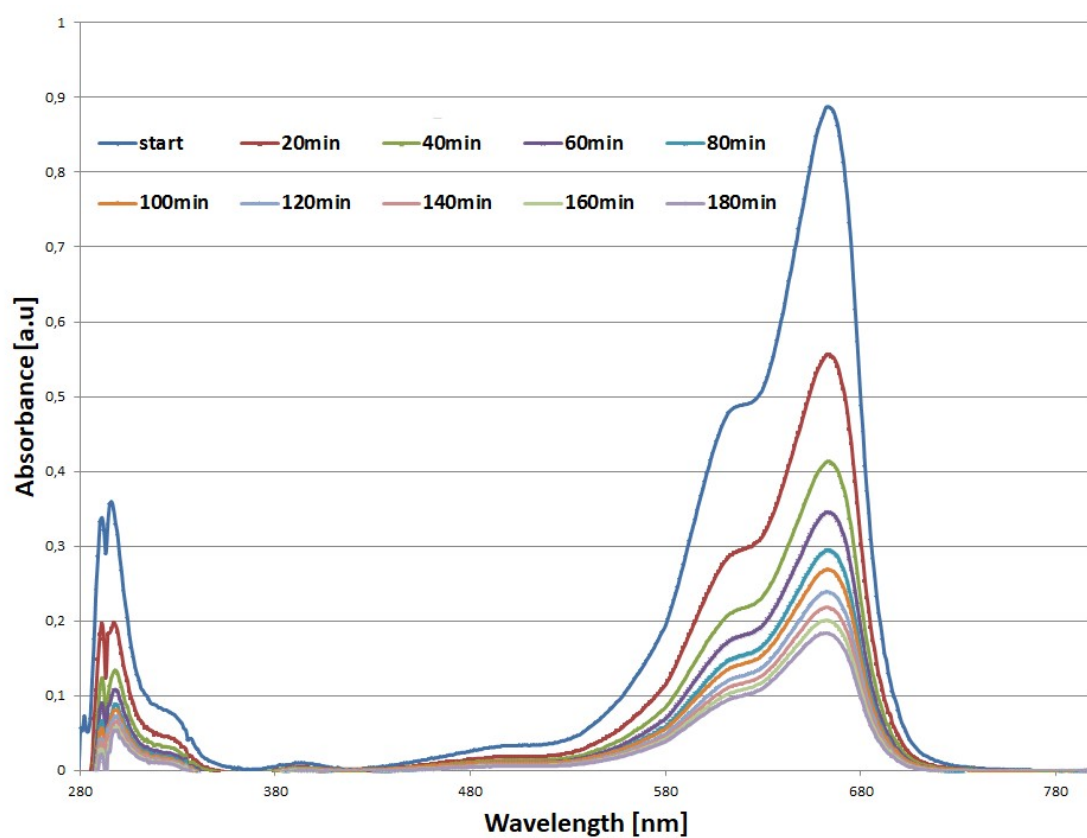
**S9.** Size distribution of TiO-derived particles (A), SiO-derived particles (B) and TiO-SiO-derived particles obtained by laser ablation in ethanol and by subsequent evaporation of the liquid and following ultrasonification in ethanol



**S10.** Progress of MB degradation in presence of TiO-derived colloid obtained by laser ablation of TiO target in ethanol

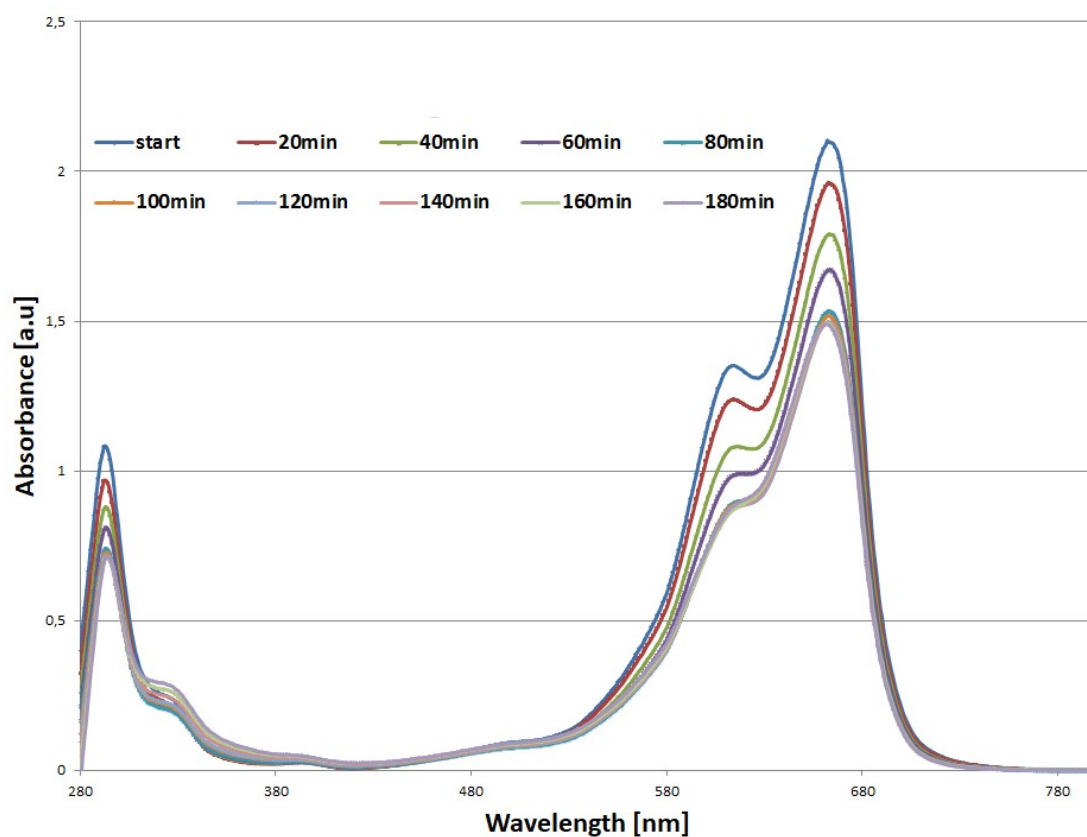


**S11.** Progress of MB degradation in presence of TiO-derived colloid obtained by laser ablation of TiO target in DEI water

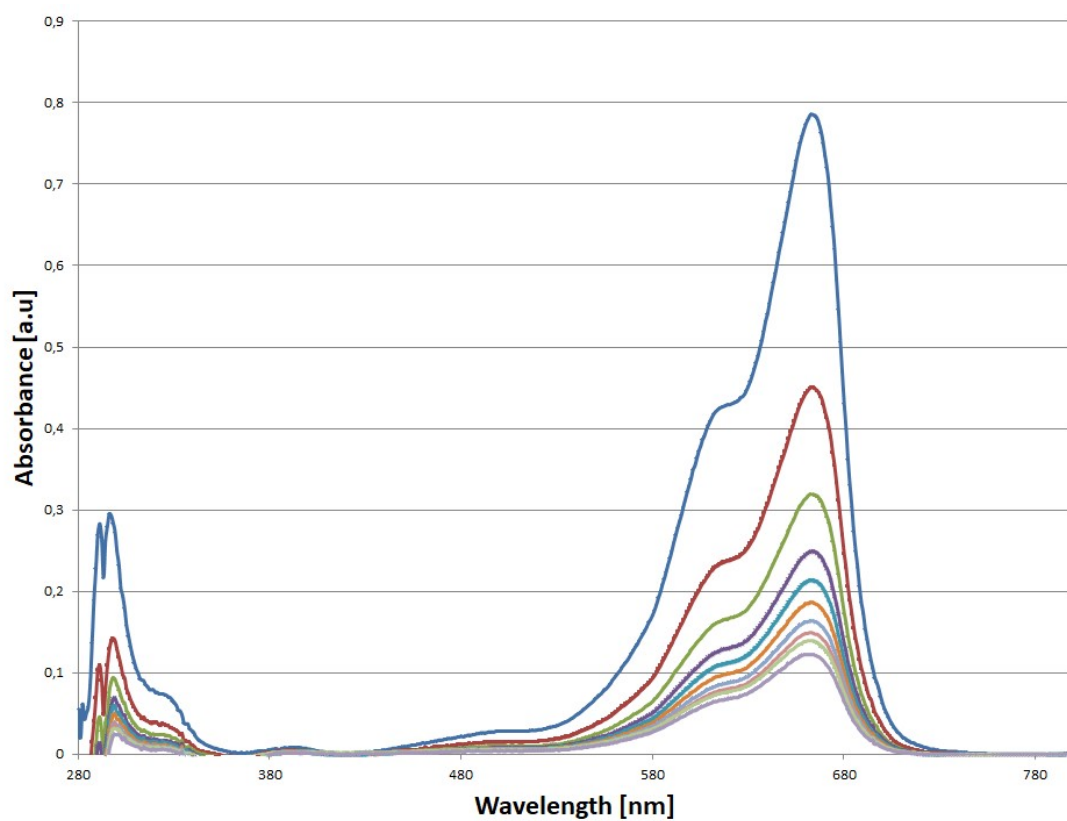


**S12.** Progress of MB degradation in presence of SiO-derived colloid obtained by laser ablation of SiO target in ethanol

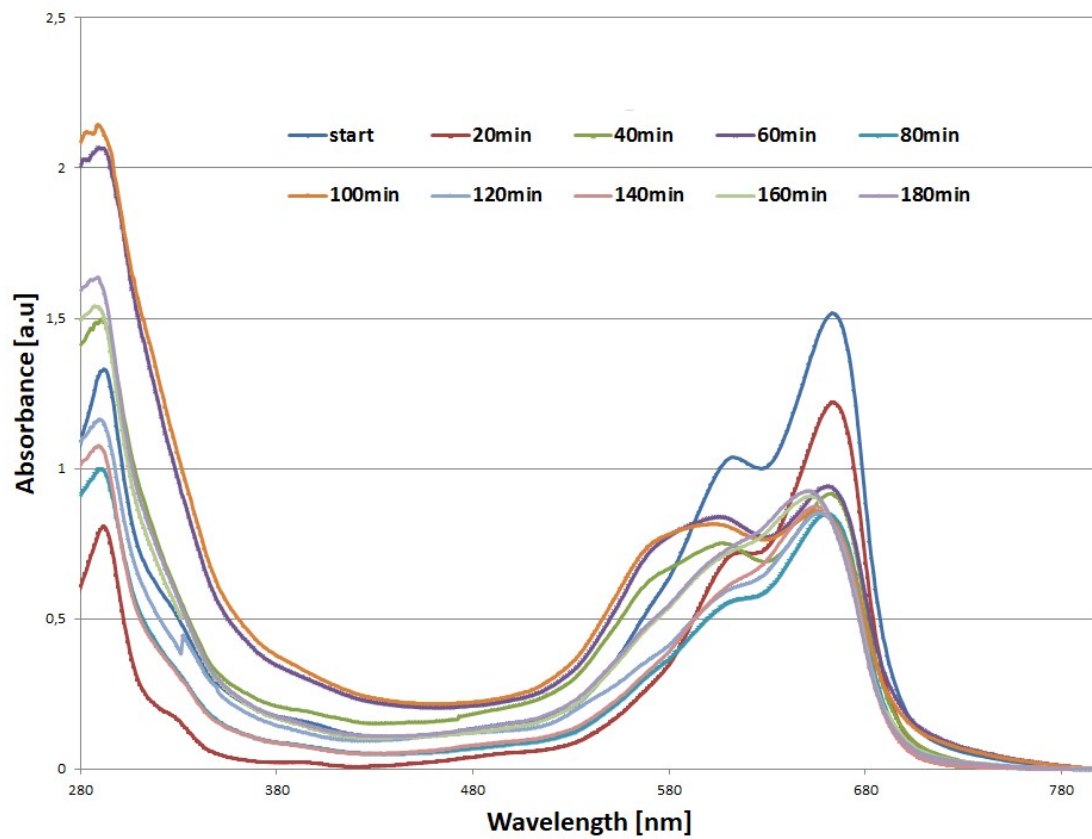




**S13.** Progress of MB degradation in presence of SiO-derived colloid obtained by laser ablation of SiO target in DEI water



**S14.** Progress of MB degradation in presence of mixed ethanolic TiO-SiO-derived colloid



**S15.** Progress of MB degradation in presence of mixed aqueous TiO-SiO-derived colloid