

**Electronic Supplementary Information**

**In situ ATR-FTIR study of H<sub>2</sub>O and D<sub>2</sub>O adsorption on TiO<sub>2</sub> under UV irradiation**

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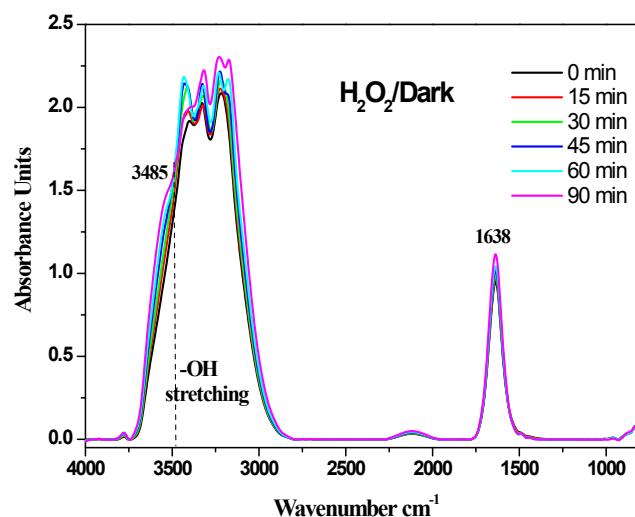


Figure S1. Spectrum of adsorption of H<sub>2</sub>O<sub>2</sub> in the dark at different times

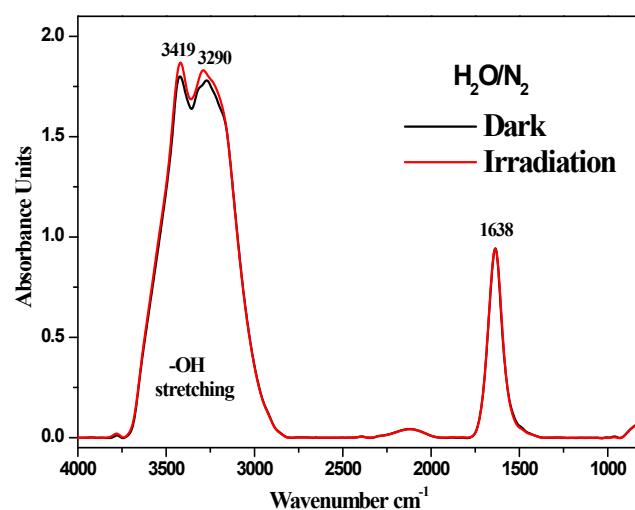
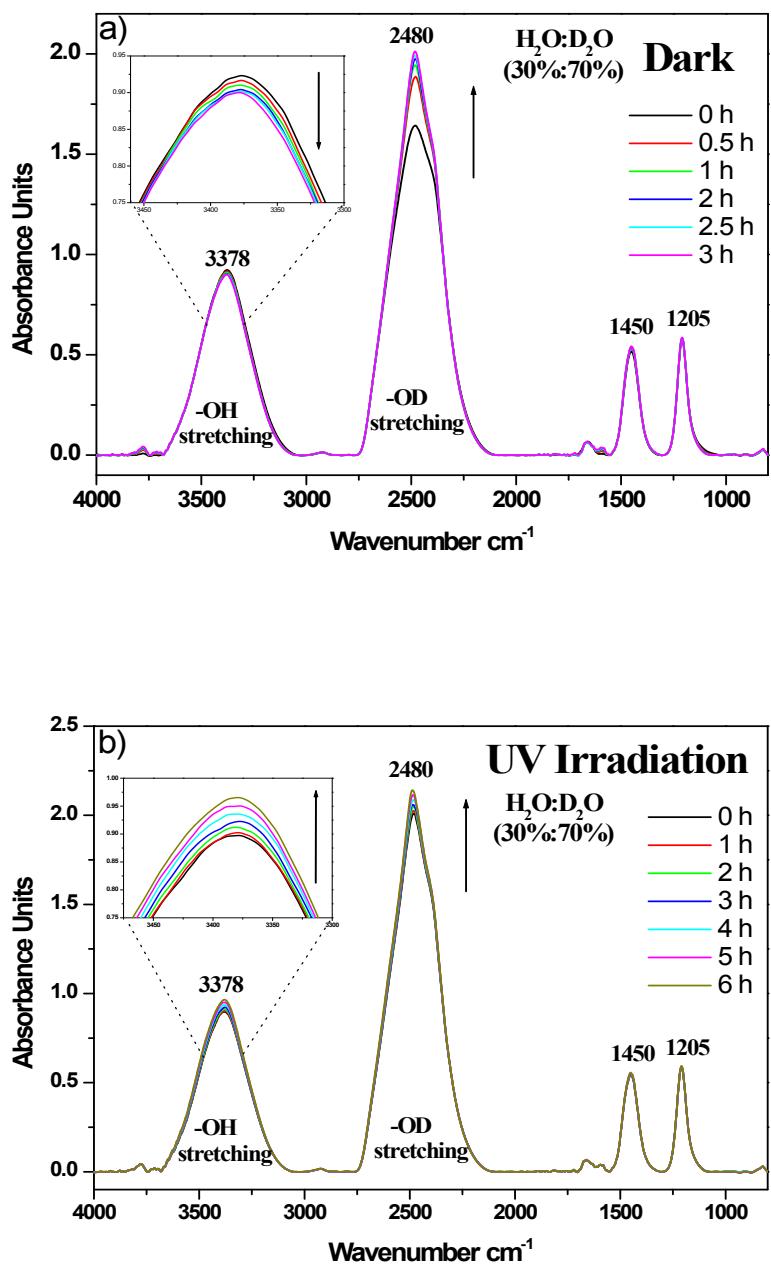


Figure S2. Adsorption of H<sub>2</sub>O in the presence N<sub>2</sub> in the dark and under UV(A) illumination



**Figure S3.** Time evolution of the ATR-FTIR spectra of an adsorbed mixture of  $\text{H}_2\text{O:D}_2\text{O}$  (30%:70%) in the presence of  $\text{O}_2$  on  $\text{TiO}_2$  a) in the dark for 3 h, b) under 6 h of UV(A) illumination.