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## SUPPLEMENTARY MATERIAL

# Artificial Visible Light-Driven Photodegradation of Orange G Dye Using Cu-Ti-Oxide (Cu<sub>3</sub>TiO<sub>5</sub>) Deposited Bentonite Nano-composites

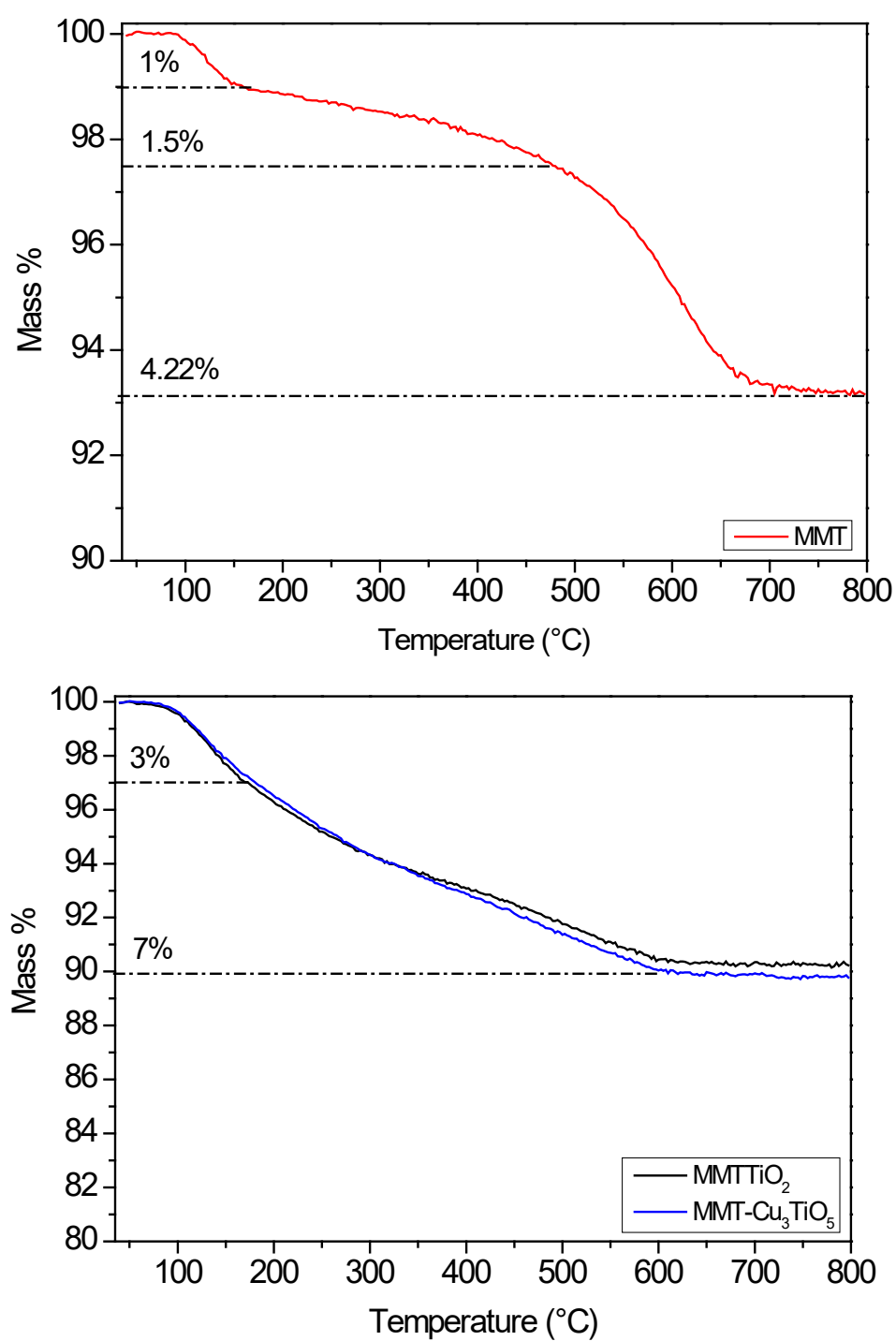
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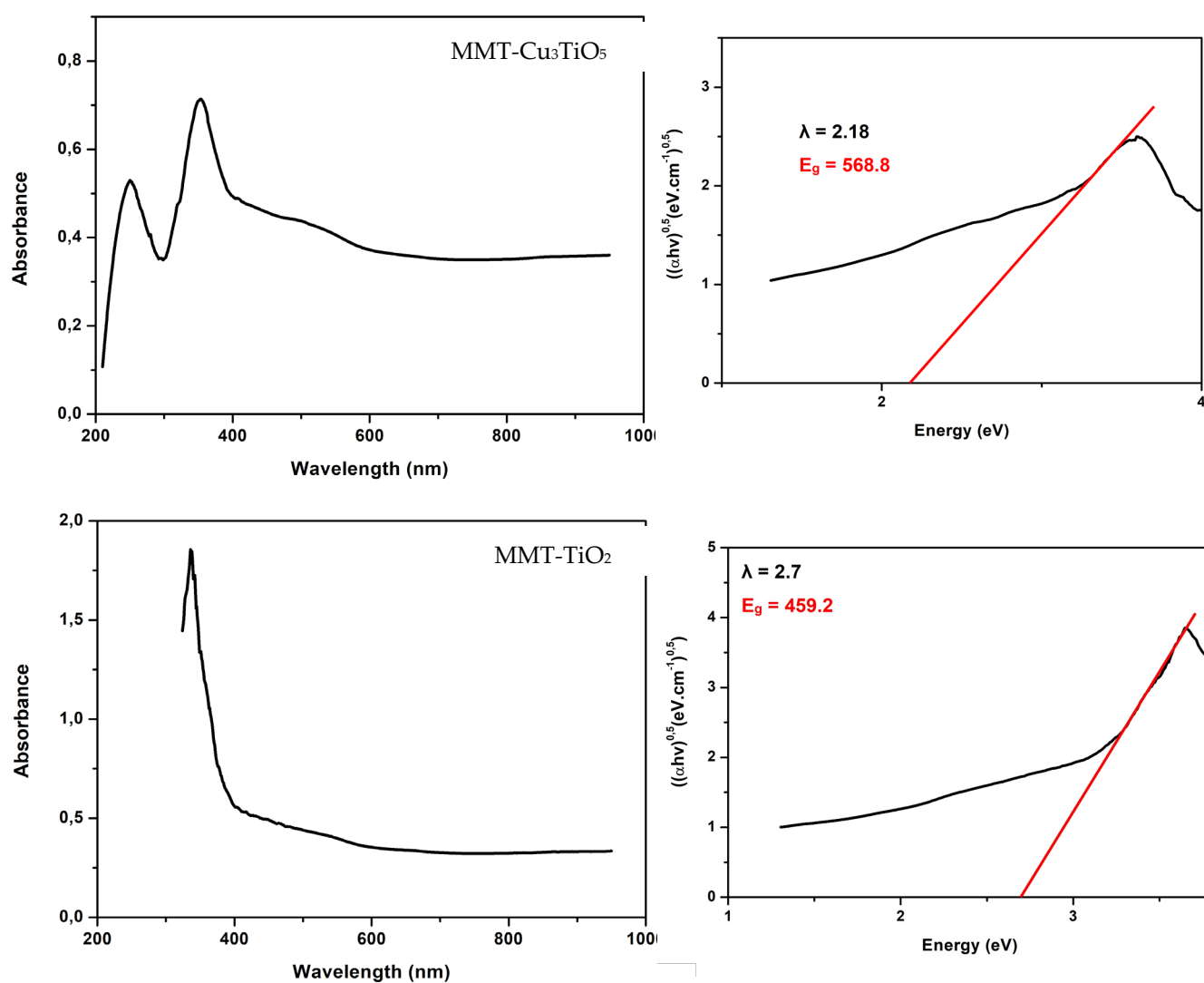
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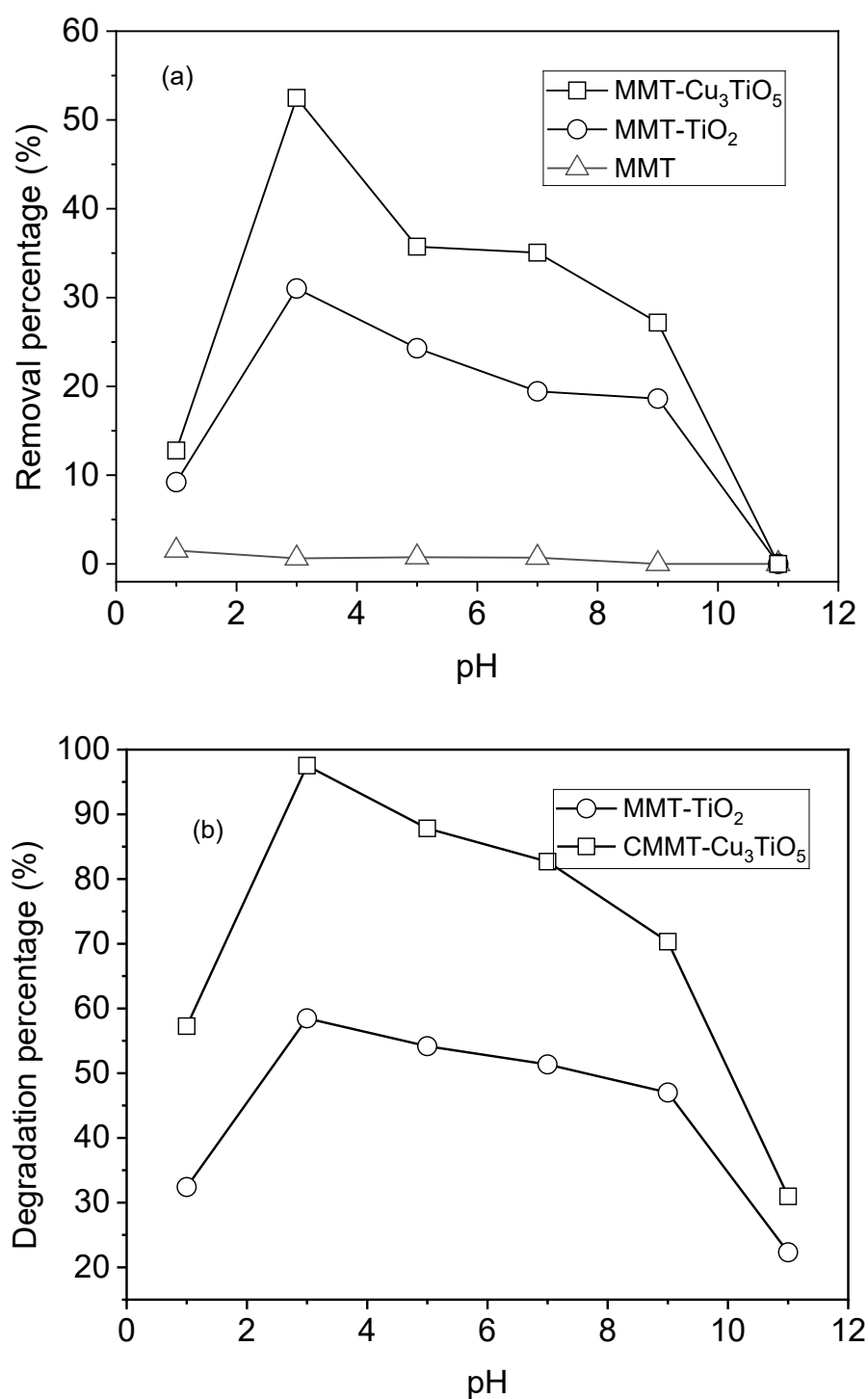
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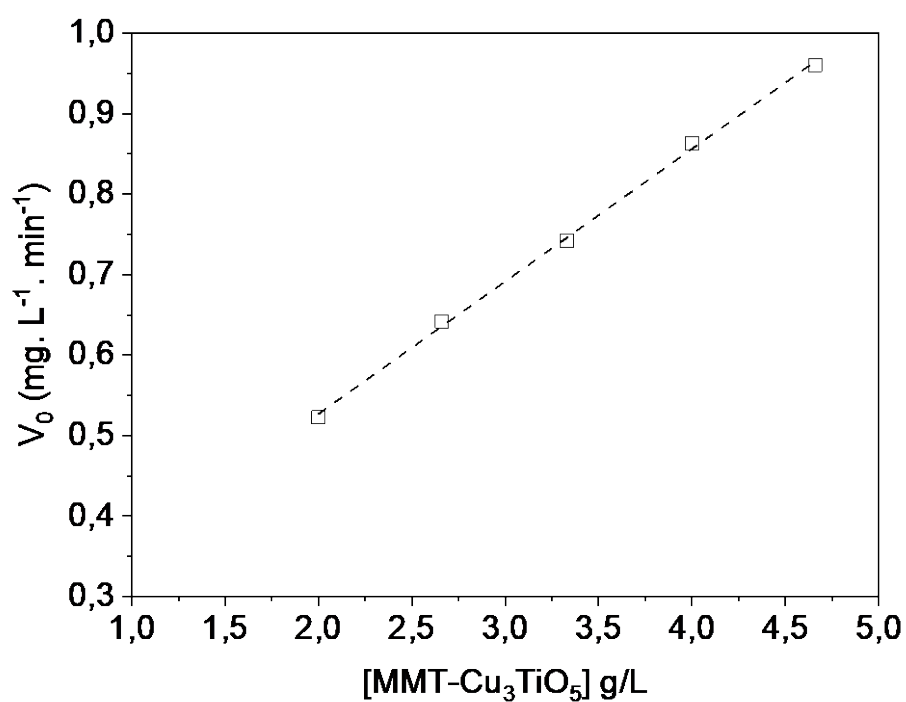
**Figure S1.** TGA of MMT, MMT-TiO<sub>2</sub> and MMT-Cu<sub>3</sub>TiO<sub>5</sub>.



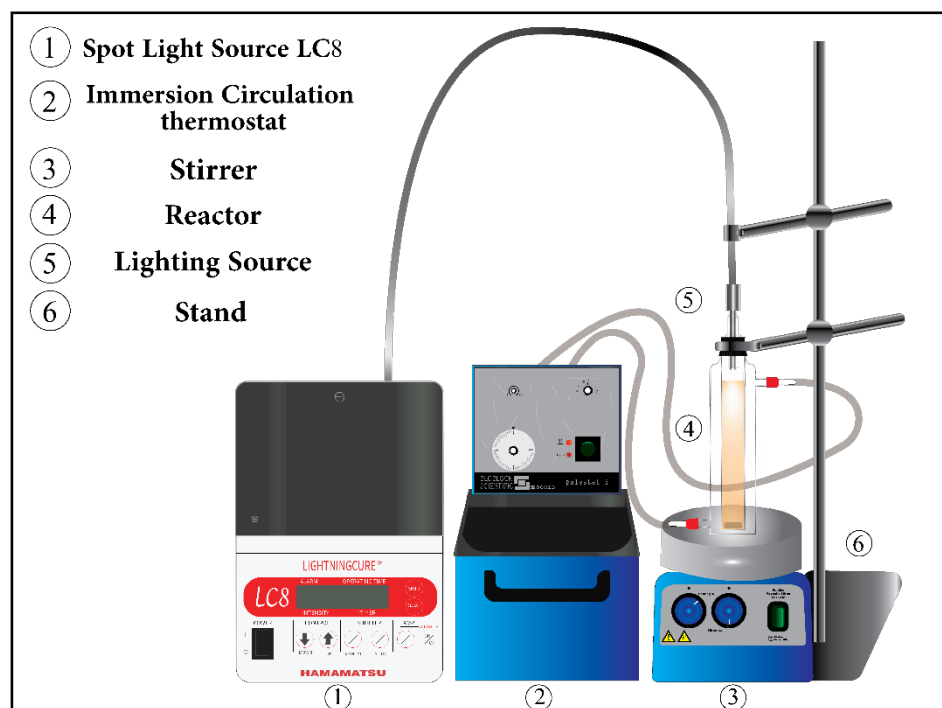
**Figure S2.** UV-visible spectra of the absorbance of materials (MMT-TiO<sub>2</sub>, MMT- Cu<sub>3</sub>TiO<sub>5</sub>) as a function of wavelength and their corresponding gap energies.



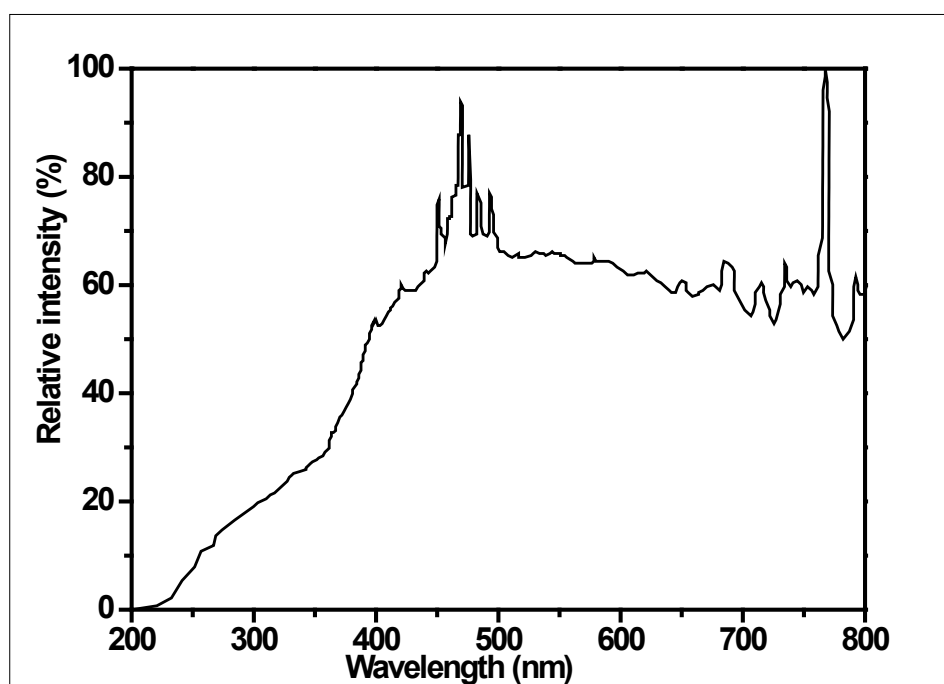
**Figure S3.** Effect of initial pH on (a) adsorption and (b) photodegradation of Orange G dye onto MMT, MMT- $\text{TiO}_2$  and MMT- $\text{Cu}_3\text{TiO}_5$ : The conditions for each experiment : OG concentration = 70 mg/L; MMT- $\text{Cu}_3\text{TiO}_5$  catalyst concentration = 2g/L; exposure time  $t$  = 30 min (MMT) and 120 min (MMT- $\text{Cu}_3\text{TiO}_5$ ) and  $T$  = 25 °C.



**Figure S4.** Validation of the linear Langmuir-Hinshelwood model for Orange G photodegradation catalyzed by MMT-Cu<sub>3</sub>TiO<sub>5</sub>.



**Figure S5.** Setup of the irradiation device.



**Figure S6.** Emission spectrum of the Xenon Lamp LC8.