

Supplementary Materials: Establishing the Link Across the Synthesis Reaction Kinetics, Structural Changes, and Photocatalytic Efficiency of an En-hanced Chitosan-Clay (1:3) Nanocomposite

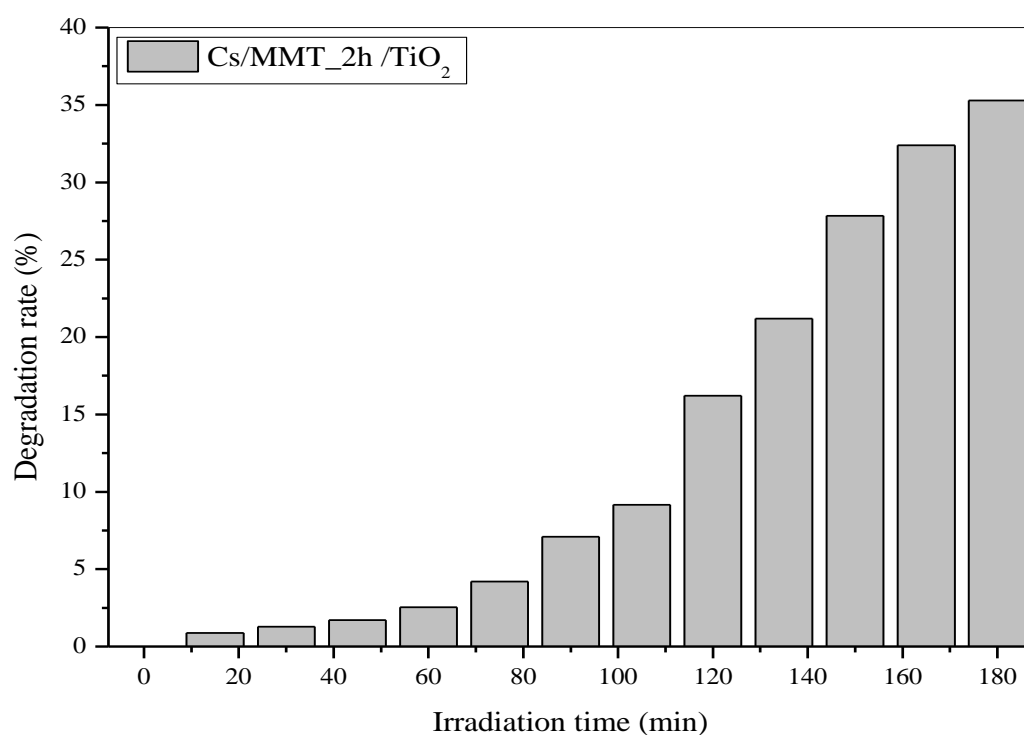
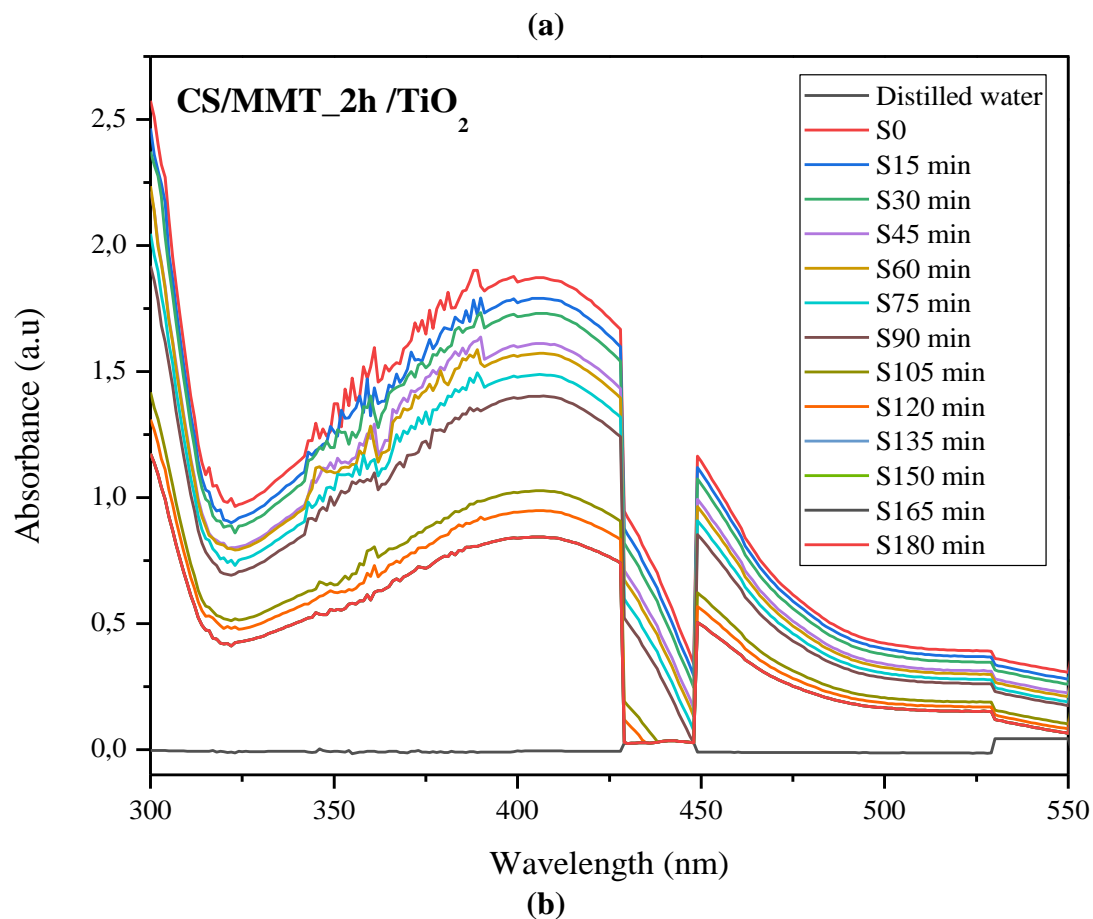
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Table S1: The commercialized CS specifications given by the supplier (Glentham life sciences (Wiltshire, UK))

Commercialized CS Specifdications	Value
Degree of Deacetylation	$\geq 90.0\%$
Sulphated Ash	$\leq 1.0\%$
Viscosity (1% in 1% AcOH, 20°C)	from 100 - 300 cps
Water	$\leq 8.0\%$
Solubility (in acetic acid)	$\leq 99\%$
pH (1% in water, 20°C)	6.0 - 8.0

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Figure S1: To be continued.

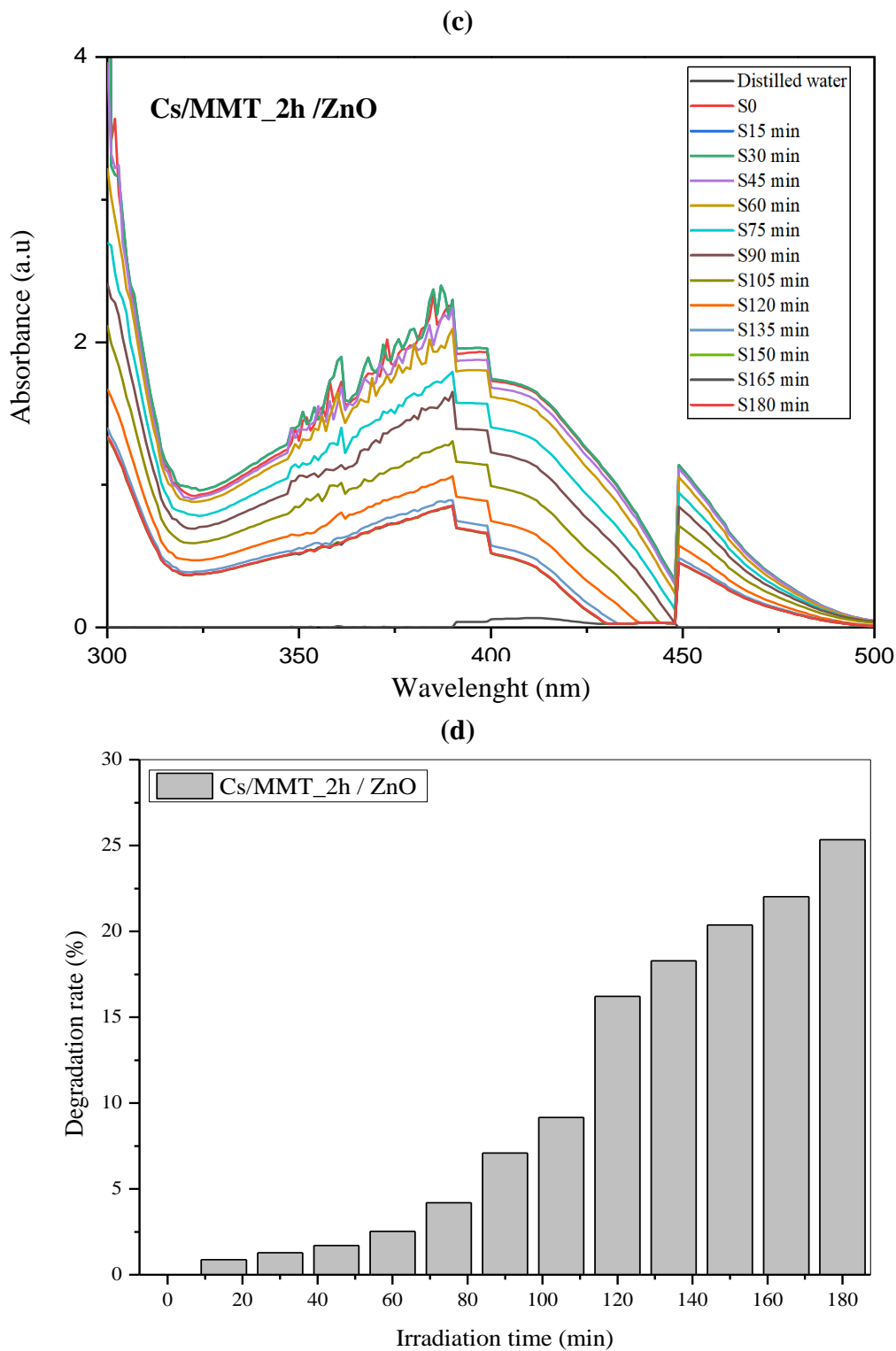
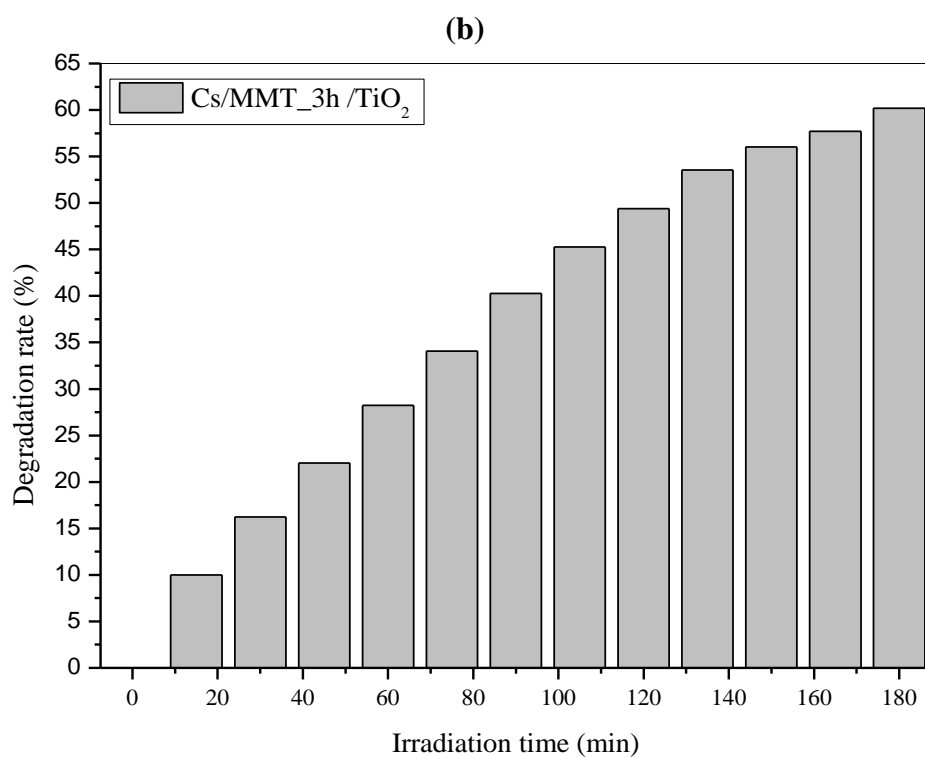
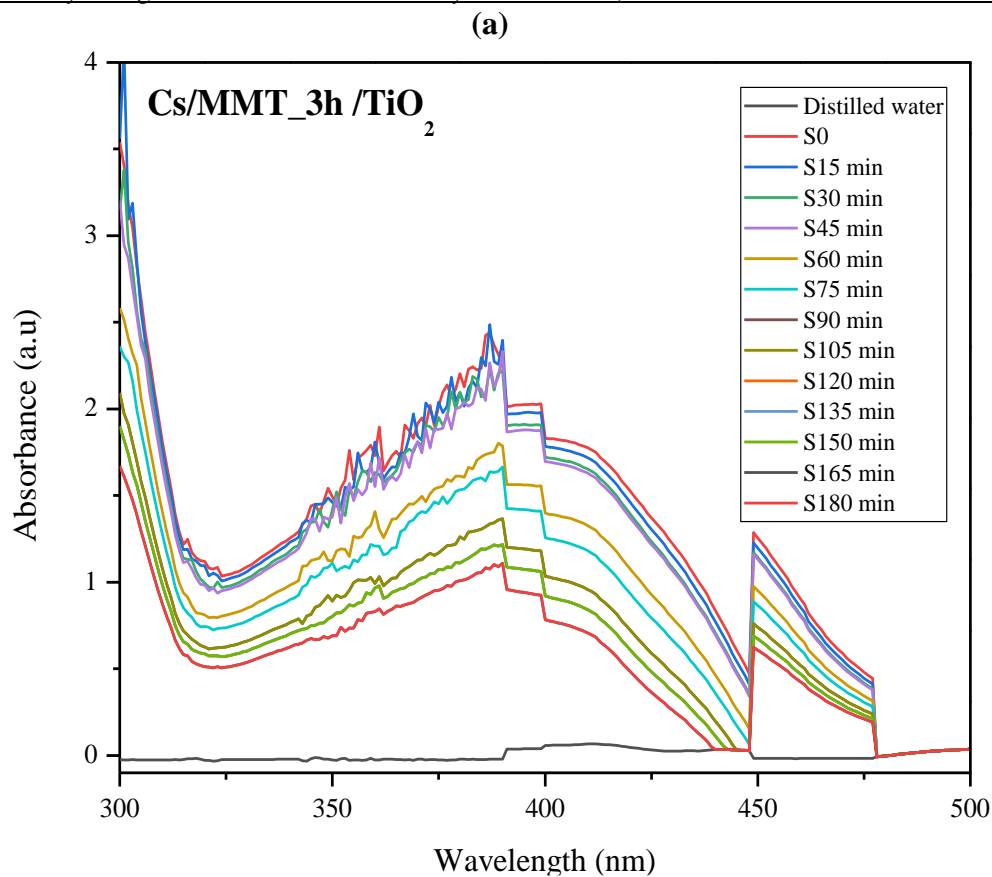


Figure S1: (a) Catalytic degradation of CBY3G-P by Cs/MMT nanocomposites 2h in the presence of TiO_2 , (b) Photocatalytic degradation rate of CBY3G-P dye on Cs/MMT, TiO_2 2h under 180 min of irradiation, (c)

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Catalytic degradation of CBY3G-P by Cs/MMT nanocomposites 2h in the presence of ZnO, and (d) Photocatalytic degradation rate of CBY3G-P dye on Cs/MMT, ZnO 2h under 180 min of irradiation.



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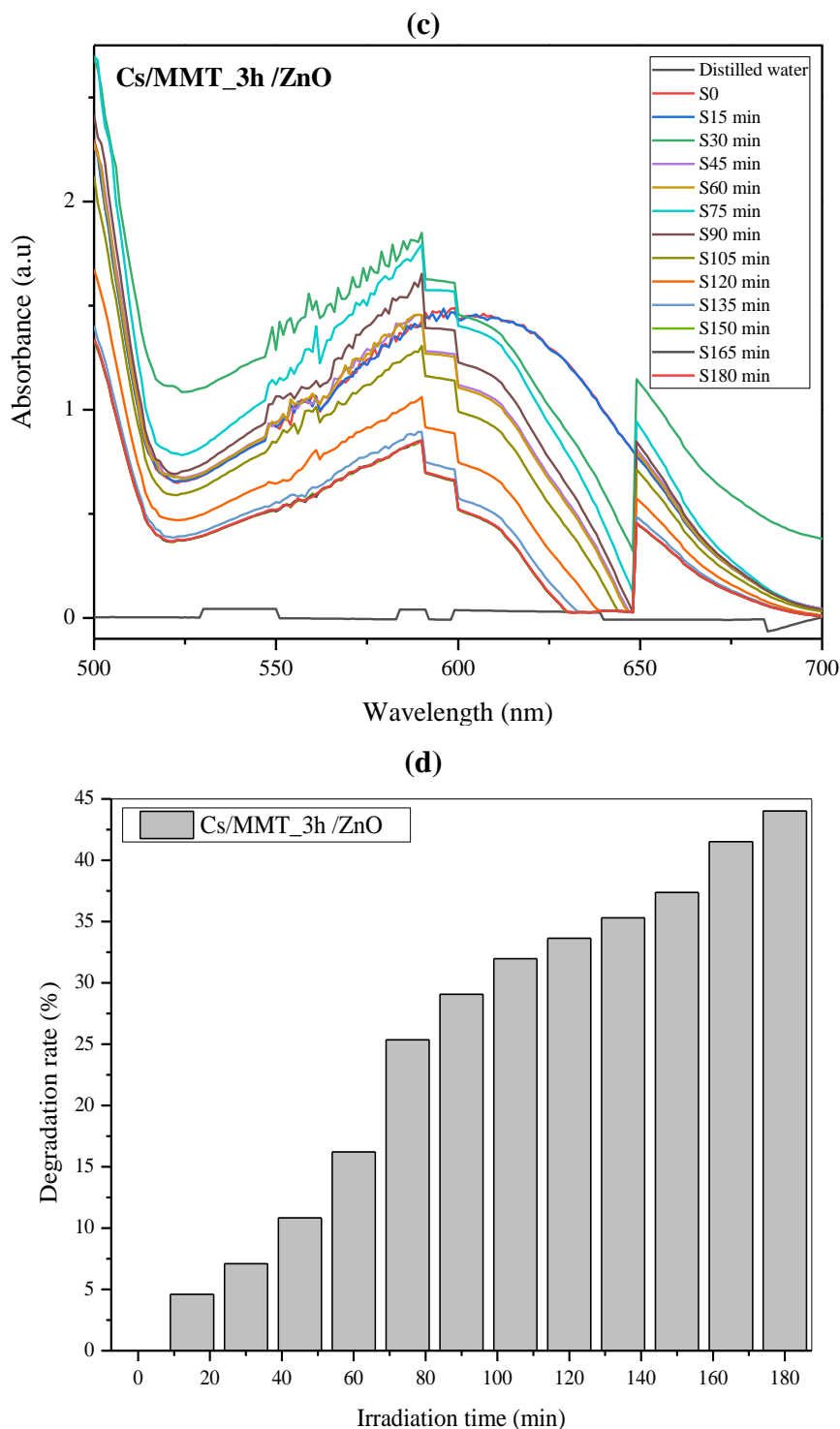
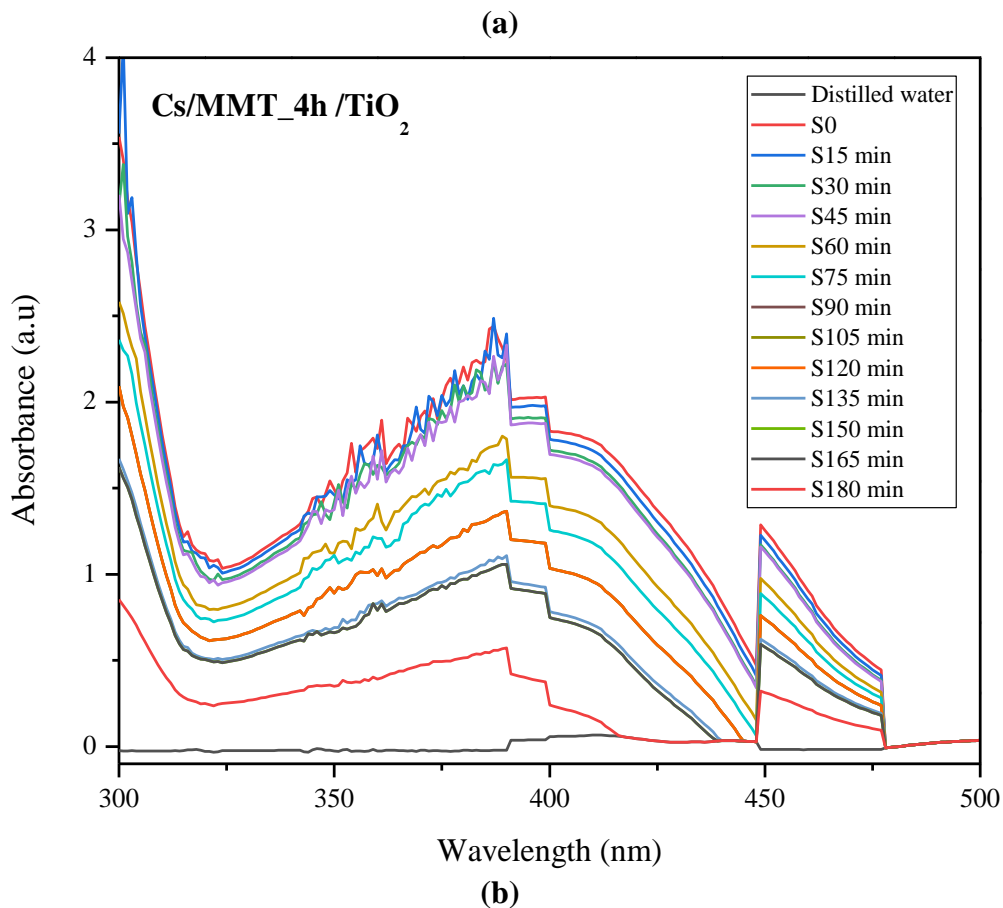


Figure S2: (a) Catalytic degradation of CBY3G-P by Cs/MMT nanocomposites 3h in the presence of TiO₂, (b) Photocatalytic degradation rate of CBY3G-P dye on Cs/MMT, TiO₂ 3h under 180 min of irradiation, (c)

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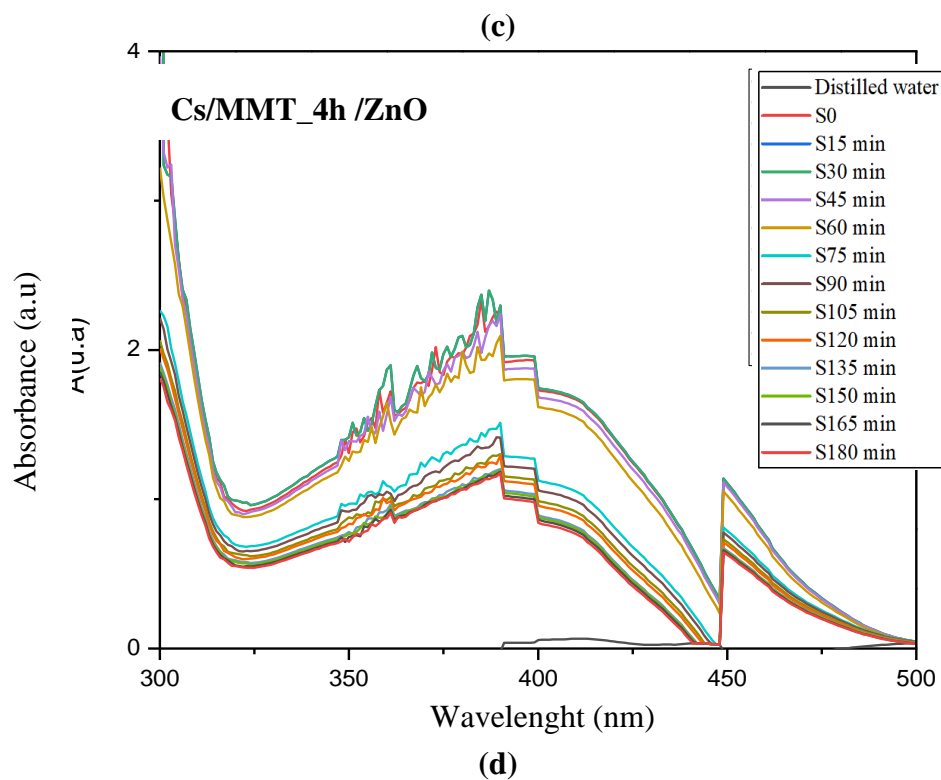
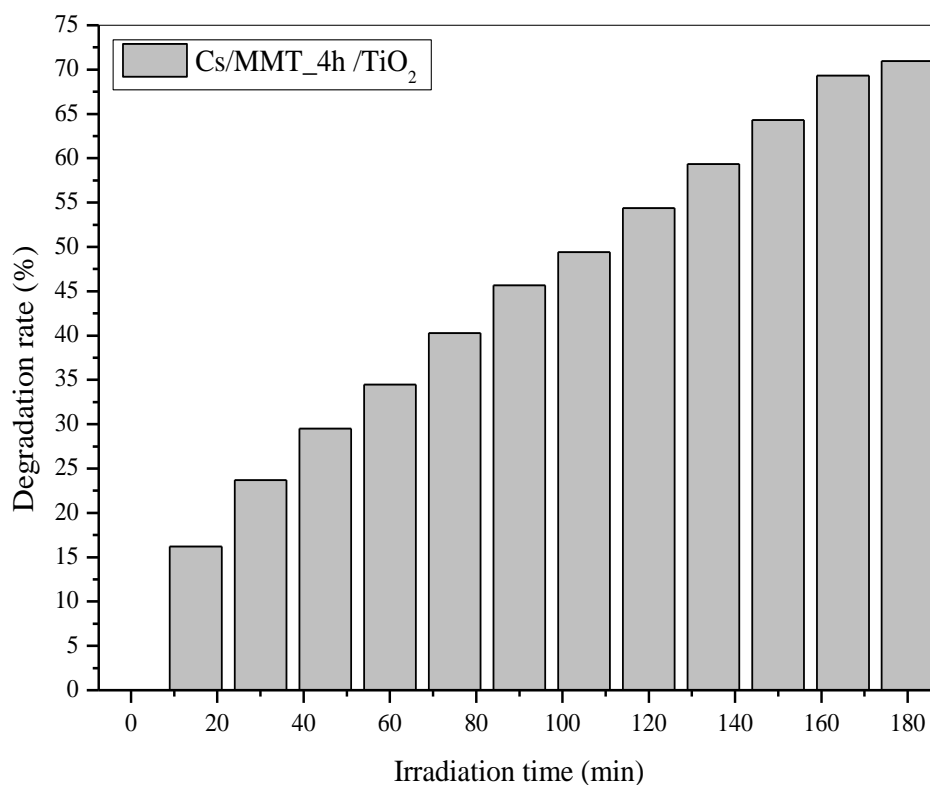
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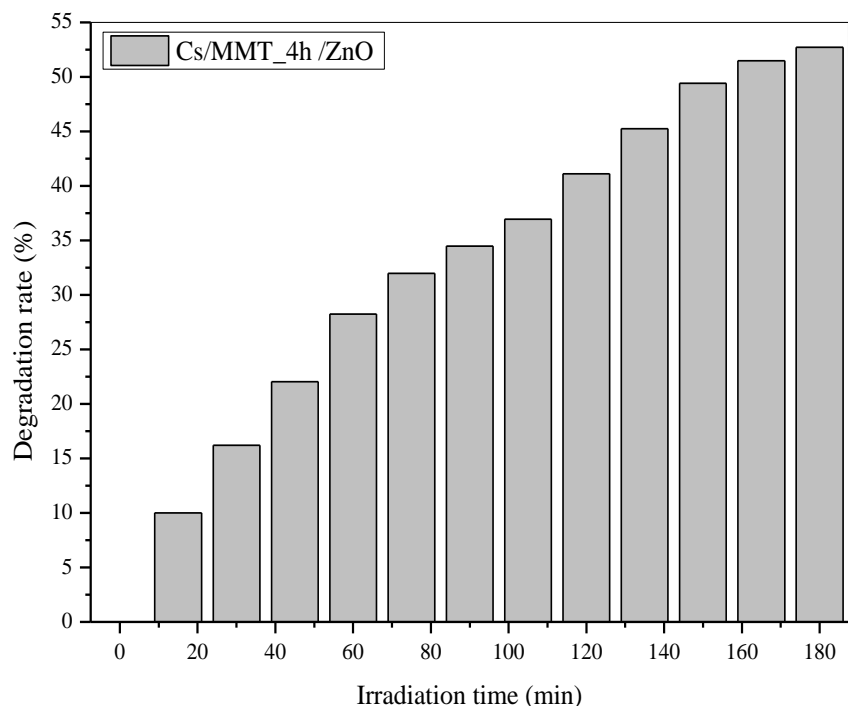
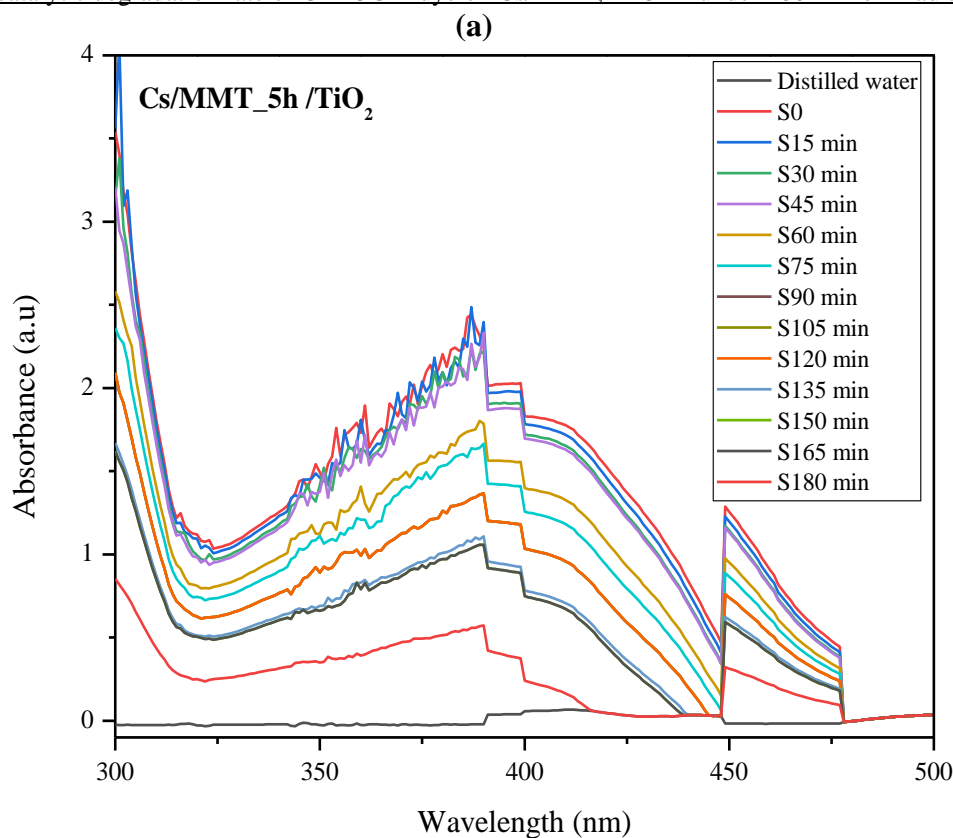
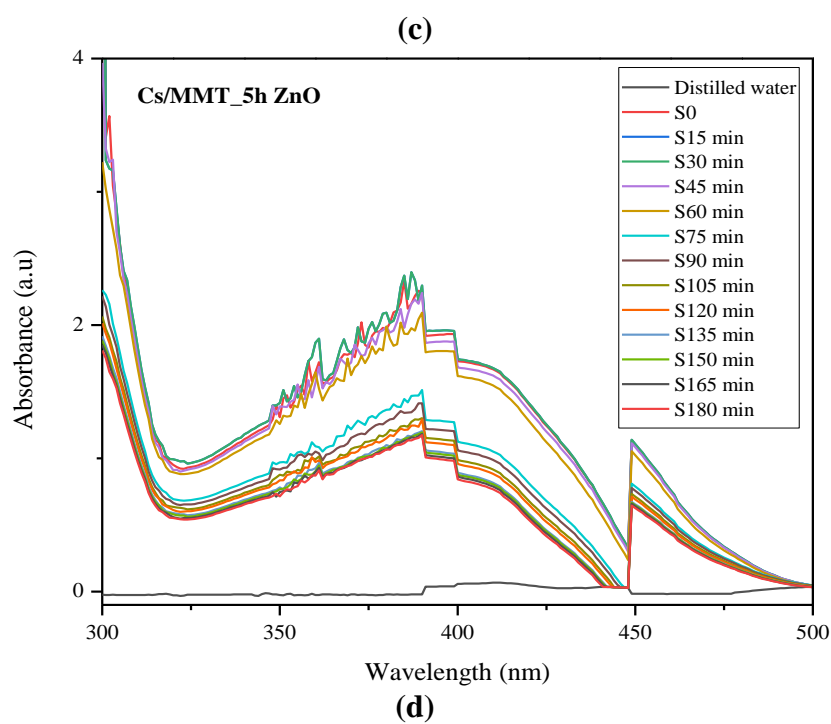
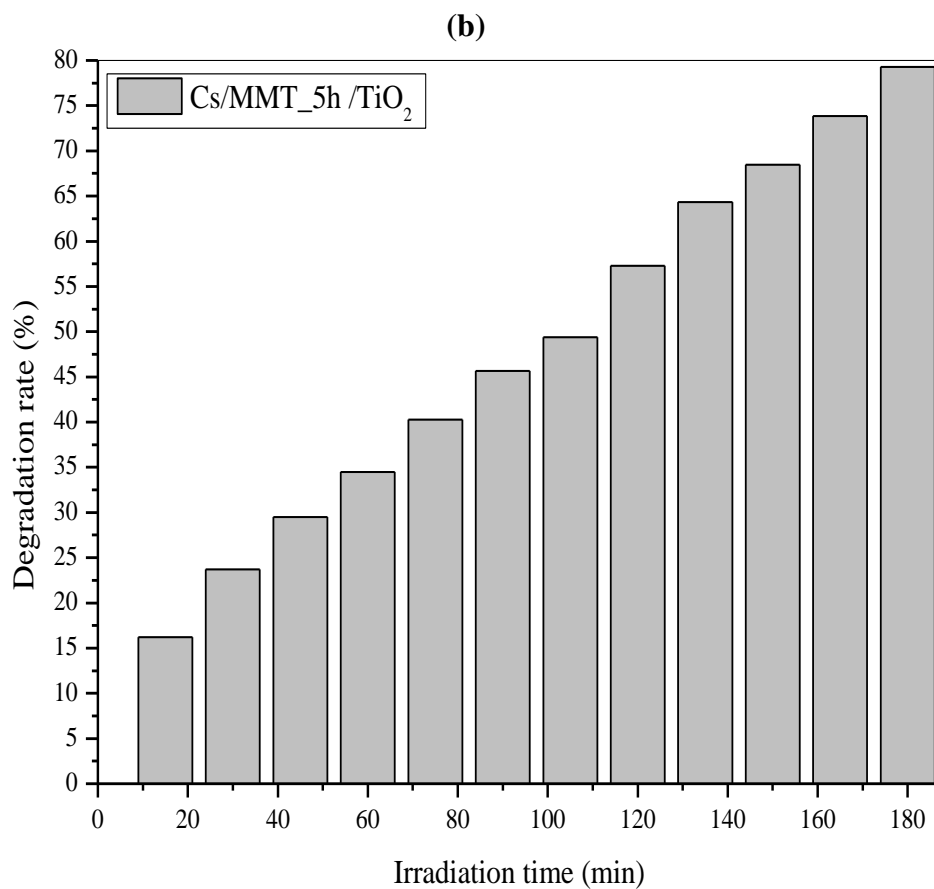


Figure S3: (a) Catalytic degradation of CBY3G-P by Cs/MMT nanocomposites 4h in the presence of TiO_2 , (b) Photocatalytic degradation rate of CBY3G-P dye on Cs/MMT, TiO_2 4h under 180 min of irradiation, (c) Catalytic degradation of CBY3G-P by Cs/MMT nanocomposites 4h in the presence of ZnO, and (d) Photocatalytic degradation rate of CBY3G-P dye on Cs/MMT, ZnO 4h under 180 min of irradiation.



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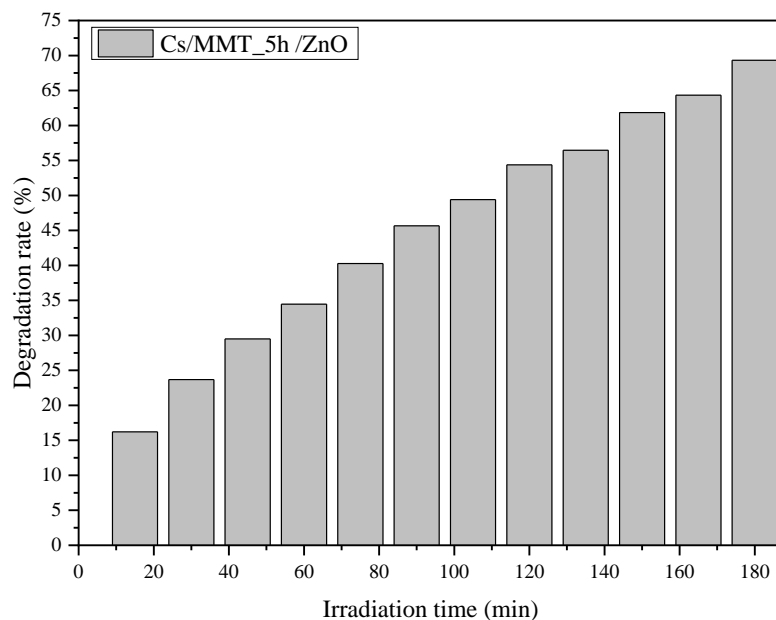
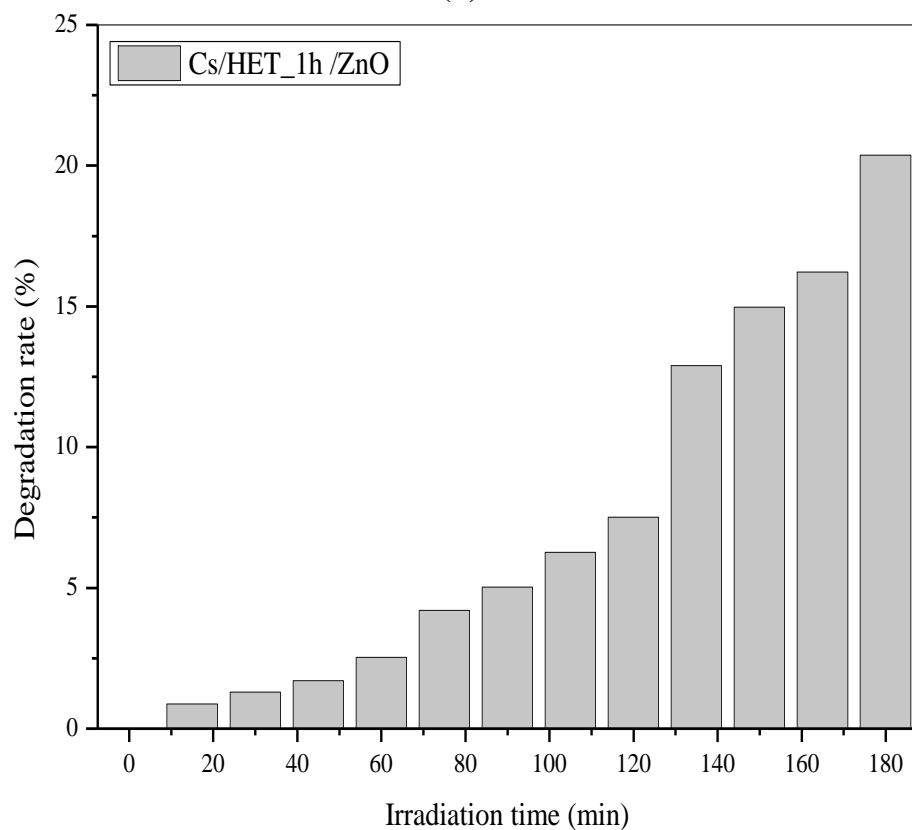
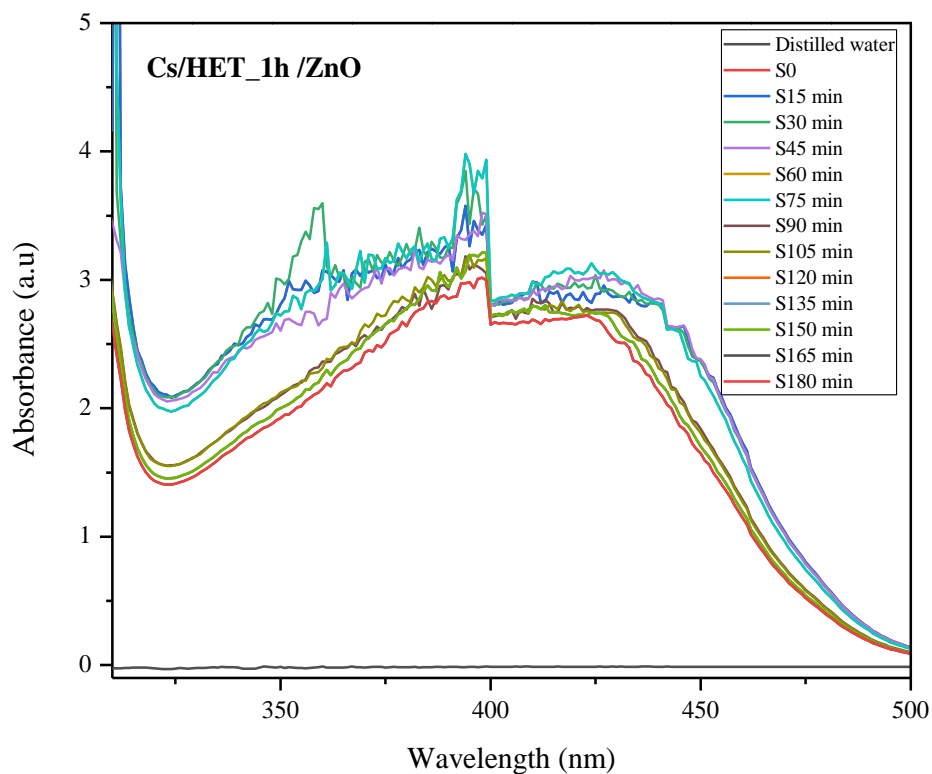


Figure S4: (a) Catalytic degradation of CBY3G-P by Cs/MMT nanocomposites 5h in the presence of TiO_2 , (b) Photocatalytic degradation rate of CBY3G-P dye on Cs/MMT, TiO_2 5h under 180 min of irradiation, (c) Catalytic degradation of CBY3G-P by Cs/MMT nanocomposites 5h in the presence of ZnO, and (d) Photocatalytic degradation rate of CBY3G-P dye on Cs/MMT, ZnO 5h under 180 min of irradiation.

(a)

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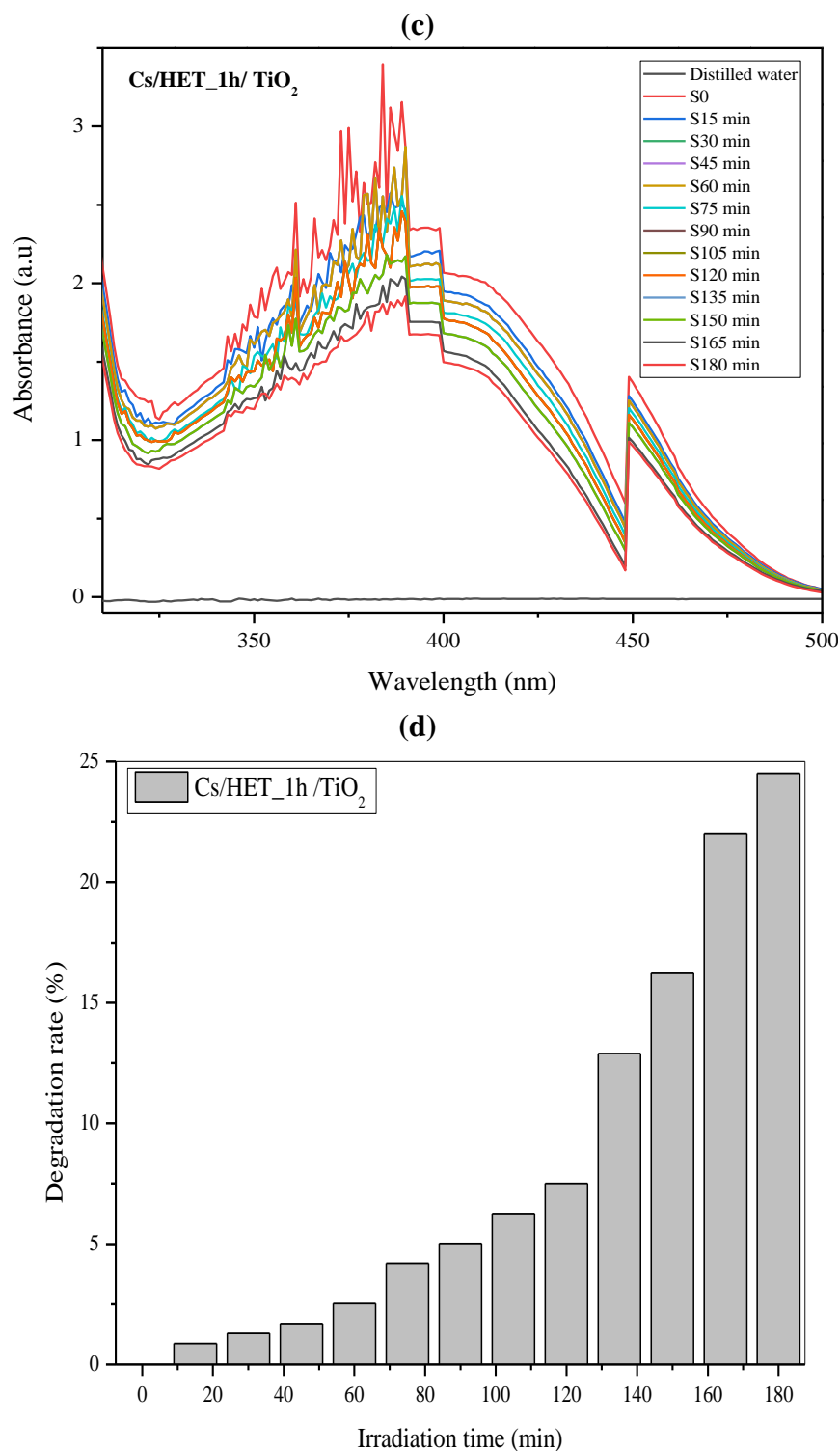
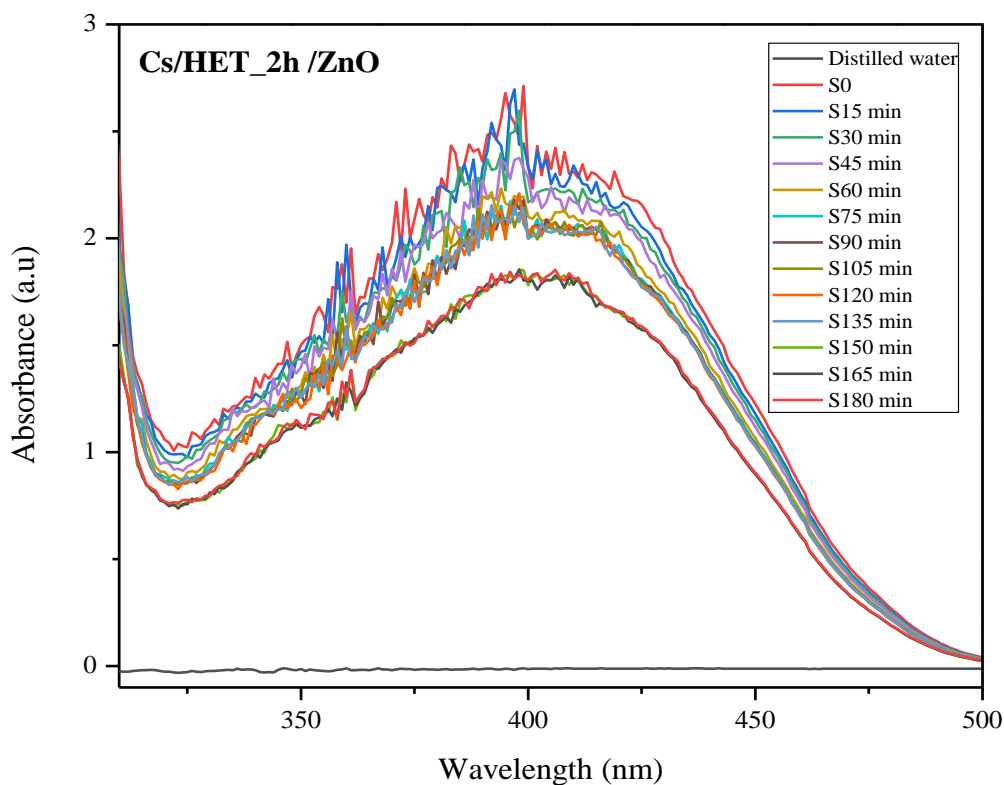


Figure S5: (a) Catalytic degradation of CBY3G-P by Cs/HET nanocomposites 1h in the presence of TiO_2 , (b) Photocatalytic degradation rate of CBY3G-P dye on Cs/HET, TiO_2 1h under 180 min of irradiation, (c) Catalytic degradation of CBY3G-P by Cs/HET nanocomposites 1h in the presence of ZnO , and (d) Photocatalytic degradation rate of CBY3G-P dye on Cs/HET, ZnO 1h under 180 min of irradiation.

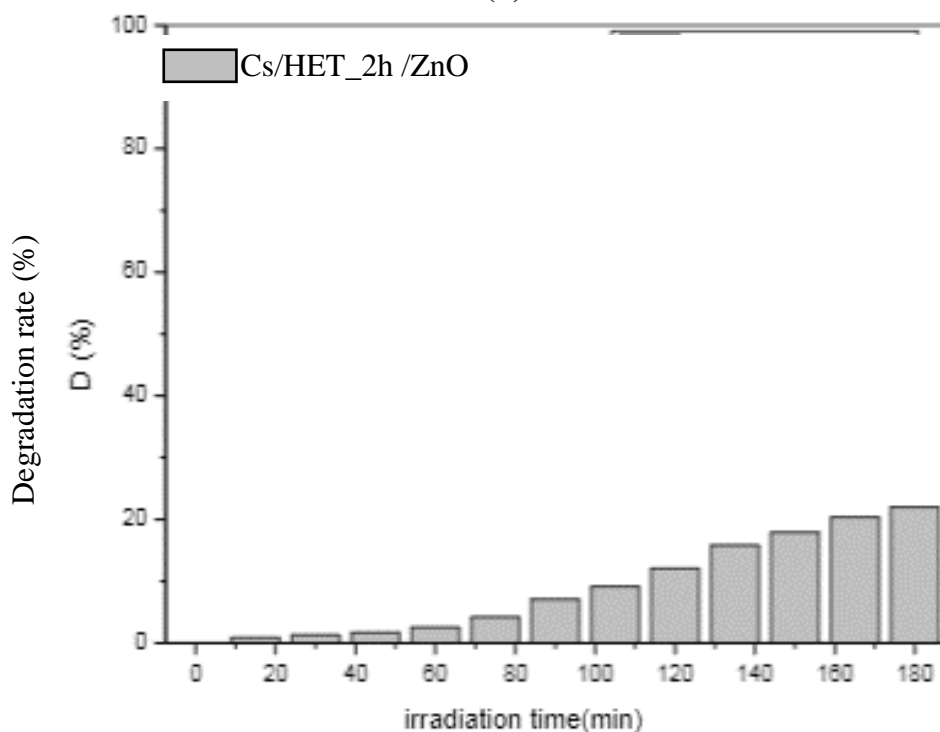
(a)

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(b)



(c)

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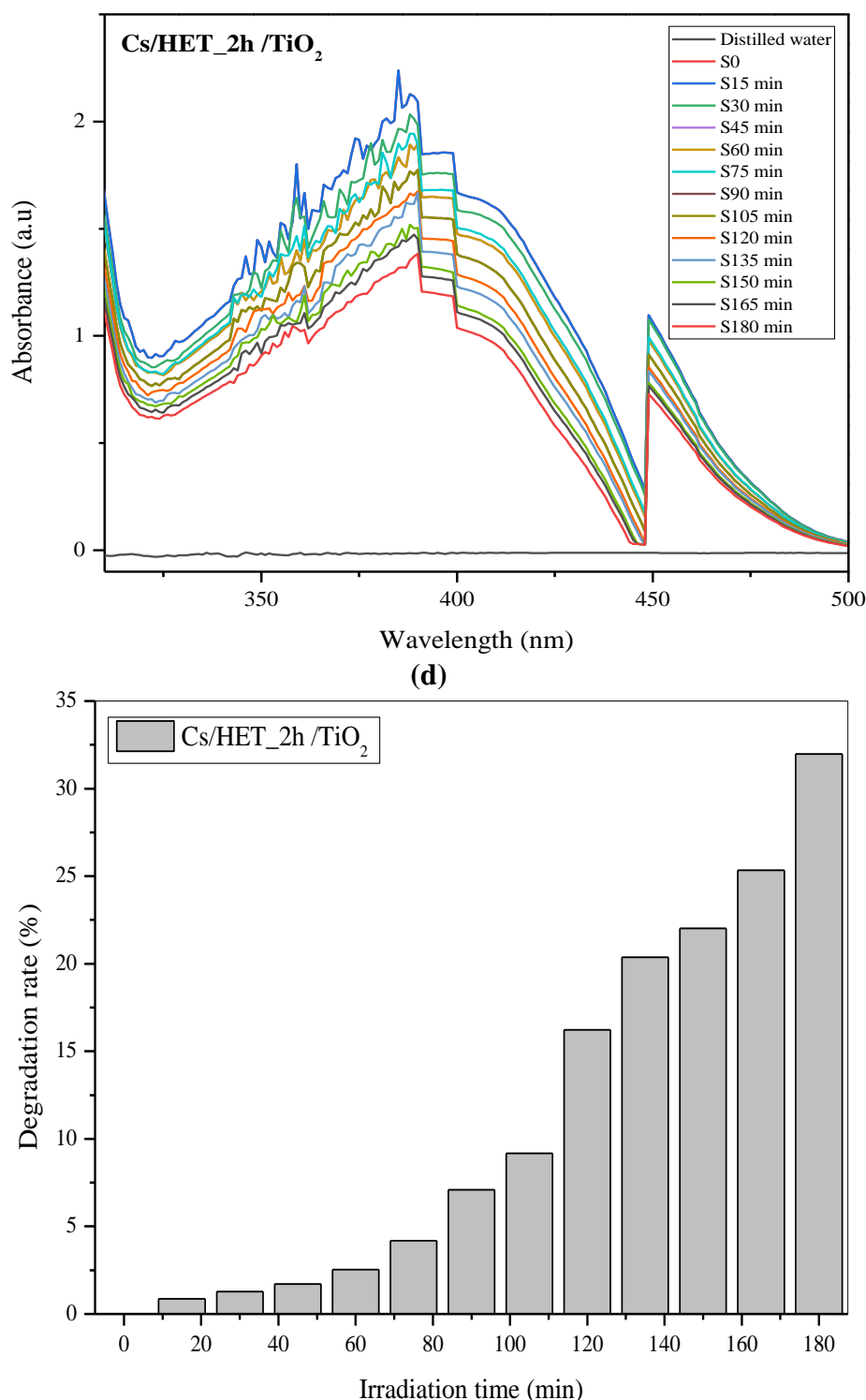
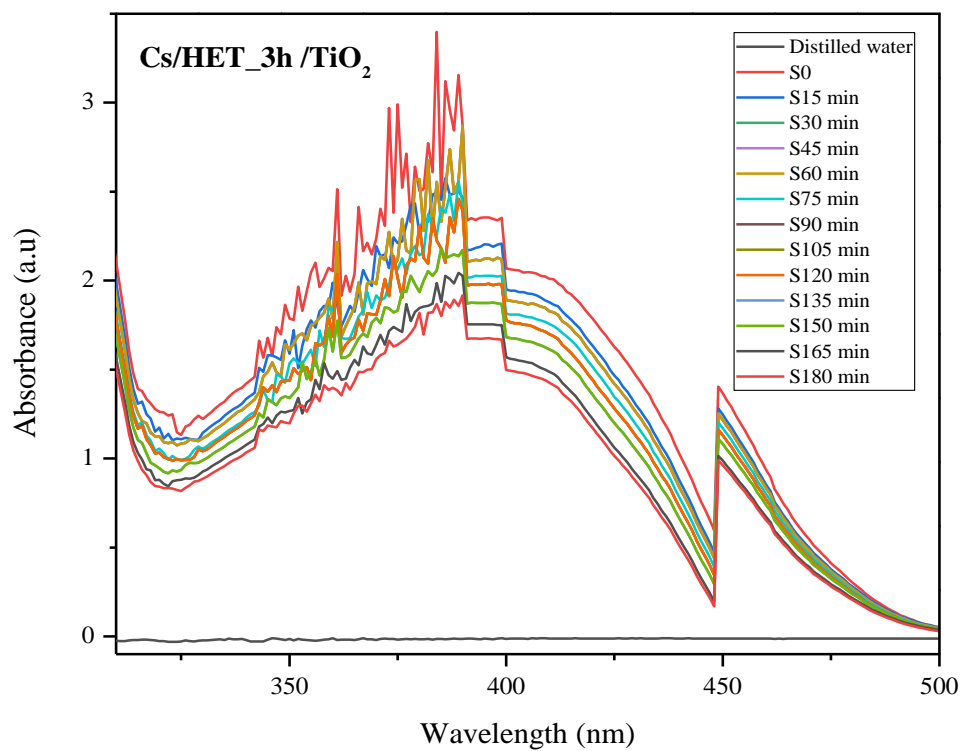


Figure S6: (a) Catalytic degradation of CBY3G-P by Cs/HET nanocomposites 2h in the presence of TiO₂, (b) Photocatalytic degradation rate of CBY3G-P dye on Cs/HET, TiO₂ 2h under 180 min of irradiation, (c) Catalytic degradation of CBY3G-P by Cs/HET nanocomposites 2h in the presence of ZnO, and (d) Photocatalytic degradation rate of CBY3G-P dye on Cs/HET, ZnO 2h under 180 min of irradiation.

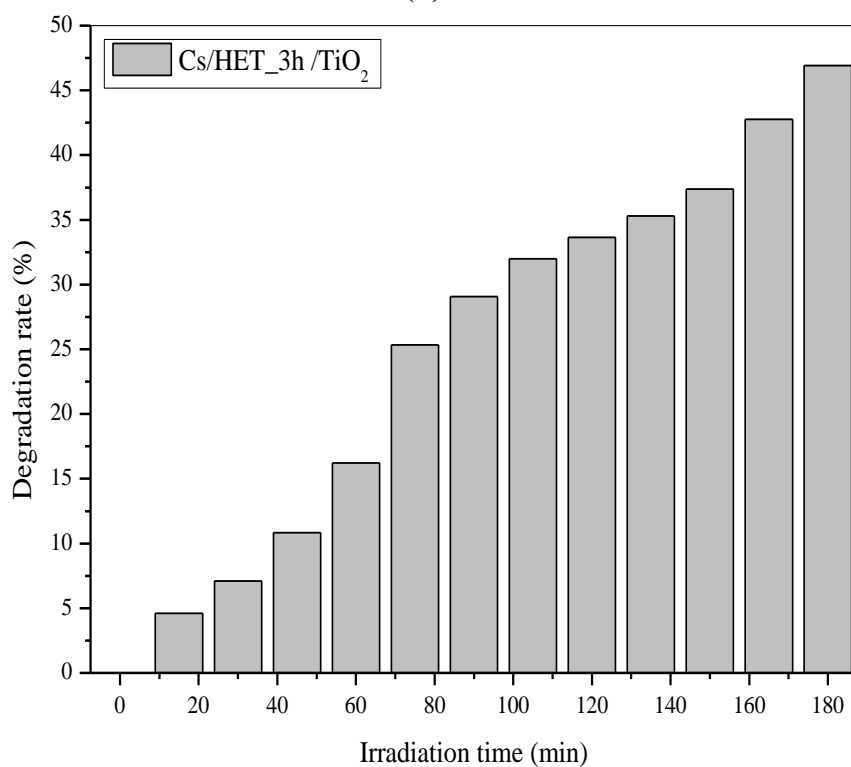
(a)

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(b)



(c)

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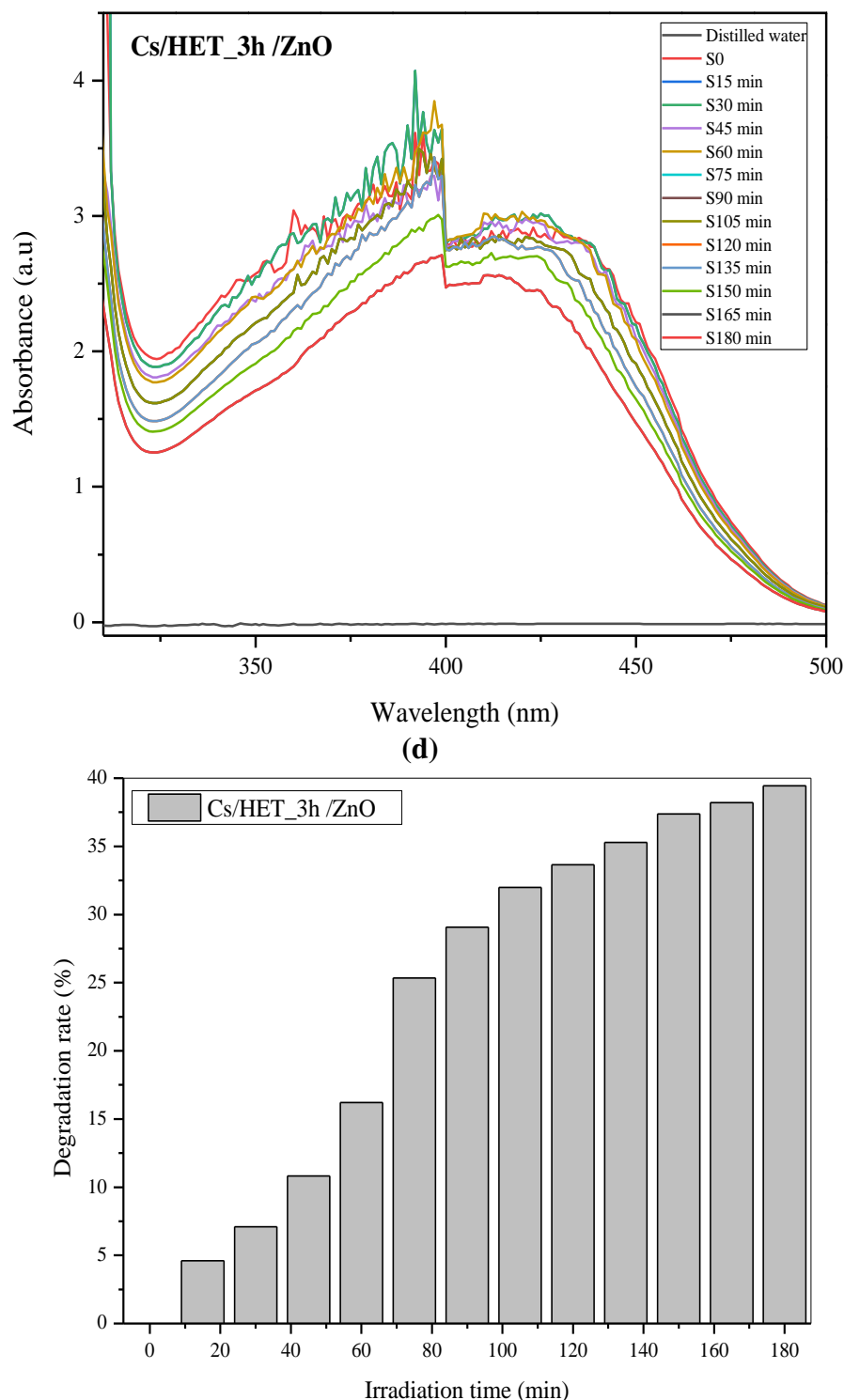
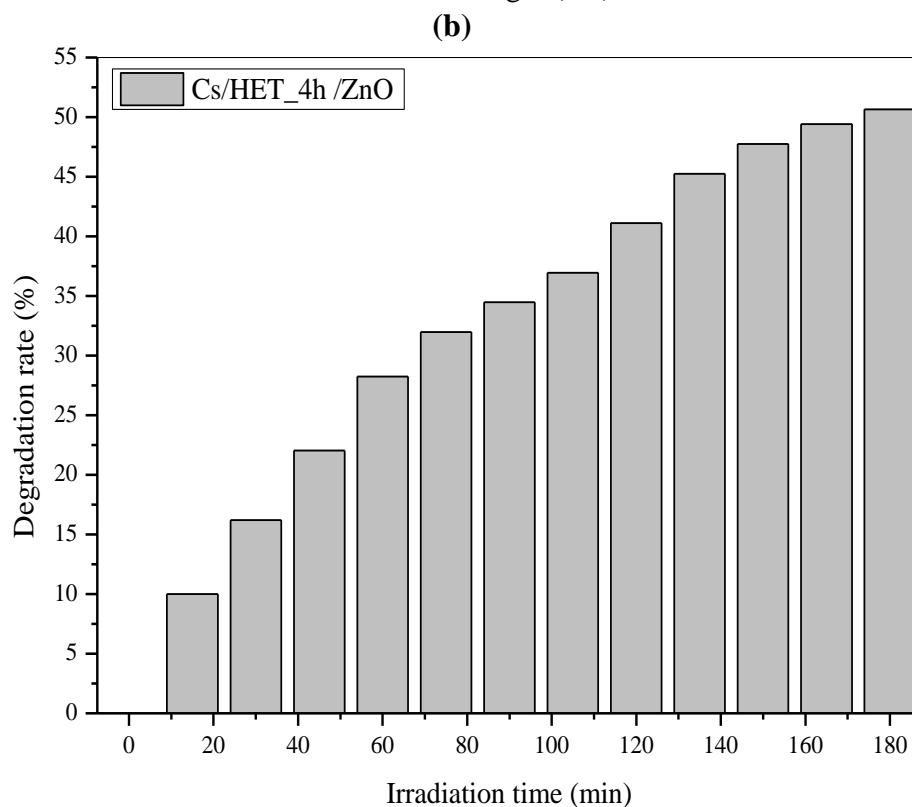
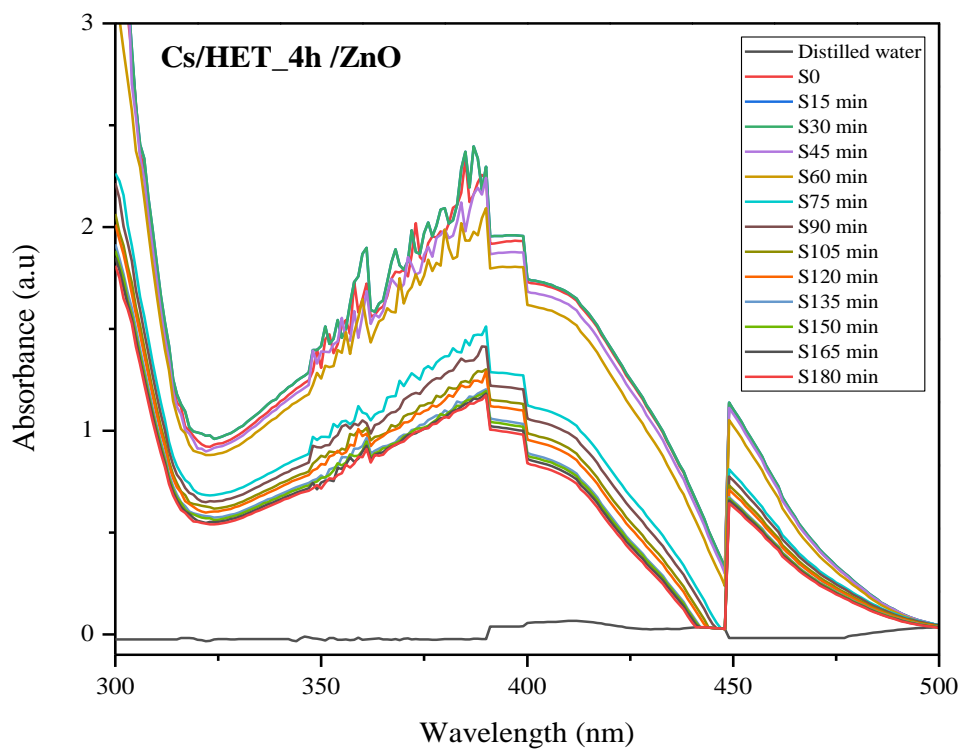


Figure S7: (a) Catalytic degradation of CBY3G-P by Cs/HET nanocomposites 3h in the presence of TiO_2 , (b) Photocatalytic degradation rate of CBY3G-P dye on Cs/HET, TiO_2 3h under 180 min of irradiation, (c) Catalytic degradation of CBY3G-P by Cs/HET nanocomposites 3h in the presence of ZnO, and (d) Photocatalytic degradation rate of CBY3G-P dye on Cs/HET, ZnO 3h under 180 min of irradiation.

(a)

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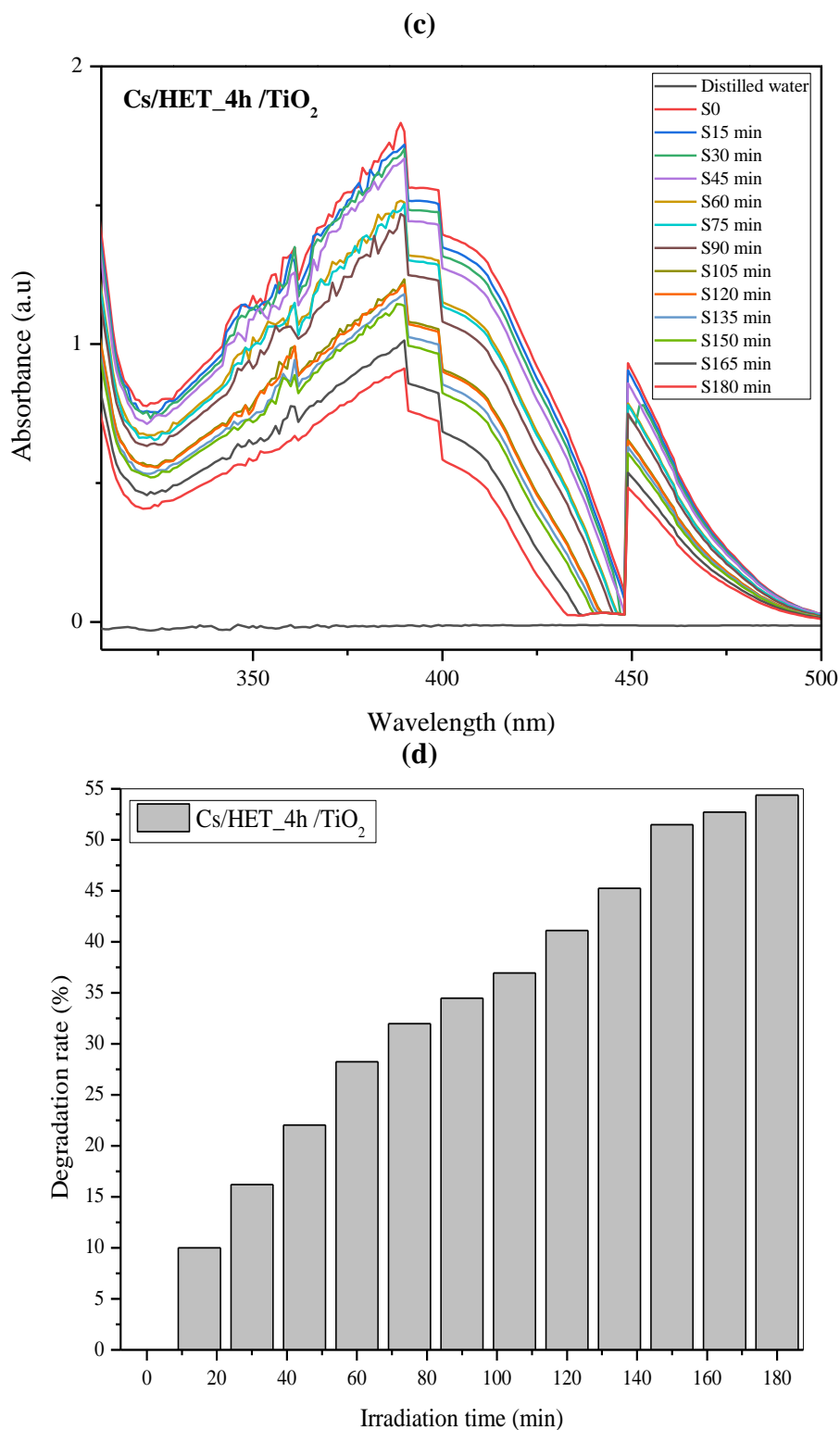
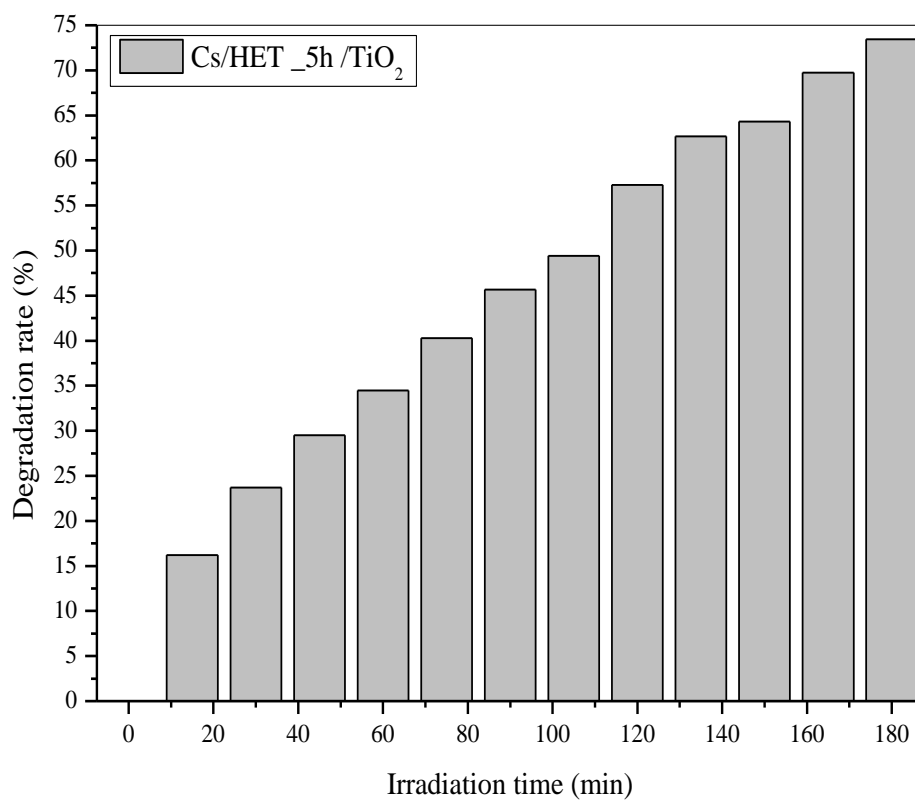
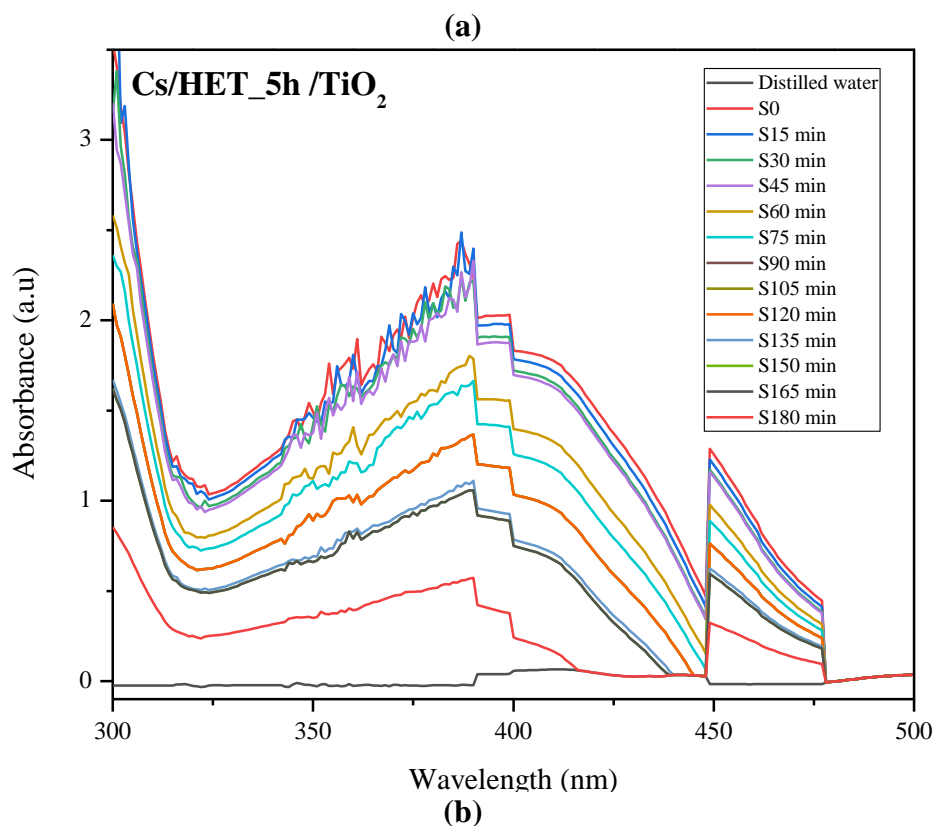


Figure S8: (a) Catalytic degradation of CBY3G-P by Cs/HET nanocomposites 4h in the presence of TiO_2 , (b) Photocatalytic degradation rate of CBY3G-P dye on Cs/HET, TiO_2 4h under 180 min of irradiation, (c) Catalytic degradation of CBY3G-P by Cs/HET nanocomposites 4h in the presence of ZnO , and (d) Photocatalytic degradation rate of CBY3G-P dye on Cs/HET, ZnO 4h under 180 min of irradiation.

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(c)

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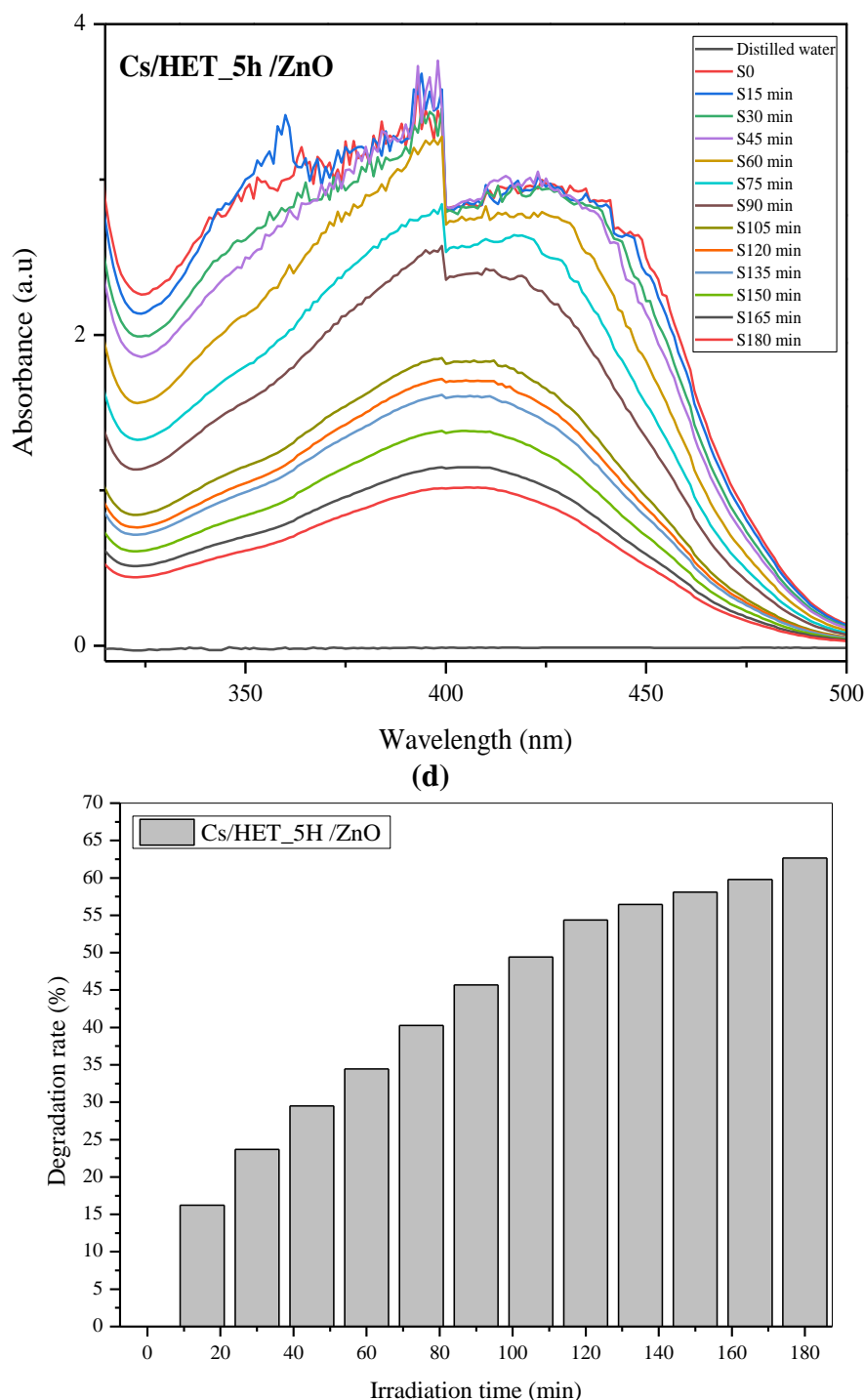


Figure S9: (a) Catalytic degradation of CBY3G-P by Cs/HET nanocomposites 5h in the presence of TiO_2 , (b) Photocatalytic degradation rate of CBY3G-P dye on Cs/HET, TiO_2 5h under 180 min of irradiation, (c) Catalytic degradation of CBY3G-P by Cs/HET nanocomposites 5h in the presence of ZnO, and (d) Photocatalytic degradation rate of CBY3G-P dye on Cs/HET, ZnO 5h under 180 min of irradiation.