Supporting Information

A hybrid design of Ag-decorated ZnO on layered nanomaterials (MgAC) with dual-function in photocatalytic and antibacterial abilities

Tuyet Nhung Pham[a*], Nguyen Thi Hue[a], Young-Chul Lee[b], Tran Quang Huy[a], Nguyen Thi Thu Thuy[a], Hoang Van Tuan[a], Nguyen Tien Khi[a,c], Vu Ngoc Phan[a,c], Tran Dang Thanh[e], Vu Dinh Lam[e], Anh-Tuan Le[**a,d]

[a.] Phenikaa University Nano Institute (PHENA), PHENIKAA University, Hanoi 12116, Vietnam

[b.] Department of BioNano Technology, Gachon University, 1342 Seongnam-Daero, Sujeong-Gu, Seongnam-Si, Gyeonggi-do 13120, Republic of Korea

[c.] Faculty of Biotechnology, Chemistry and Environmental Engineering, PHENIKAA University, Hanoi 12116, Vietnam

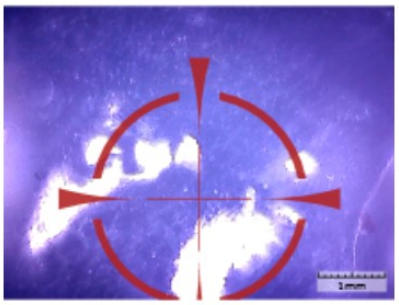
[d.] Faculty of Materials Science and Engineering, PHENIKAA University, Hanoi 12116, Vietnam

[e.] Graduate University of Science and Technology (GUST) & Institute for Materials Science (IMS), Vietnam Academy of Science and Technology, 18 Hoang Quoc Viet, Hanoi 10000, Vietnam

Corresponding authors:

*nhung.phamthituyet@phenikaa-uni.edu.vn (T.N. Pham)

**tuan.leanh@phenikaa-uni.edu.vn (A-T. Le)



Element	Value	Unit	Line	Intensity	Judgment
Cl	96.9085	wt%	Kα	625204.63	---
Zn	1.4575	wt%	Kα	86806.26	---
Rh	0.9933	wt%	Kα	47720.23	---
Ag	0.3842	wt%	Kα	11720.79	---
Fe	0.1133	wt%	Kα	3642.63	---
Cu	0.1002	wt%	Kα	5039.71	---
Co	0.0307	wt%	Kα	1182.78	---
Ni	0.0124	wt%	Kα	562.79	---

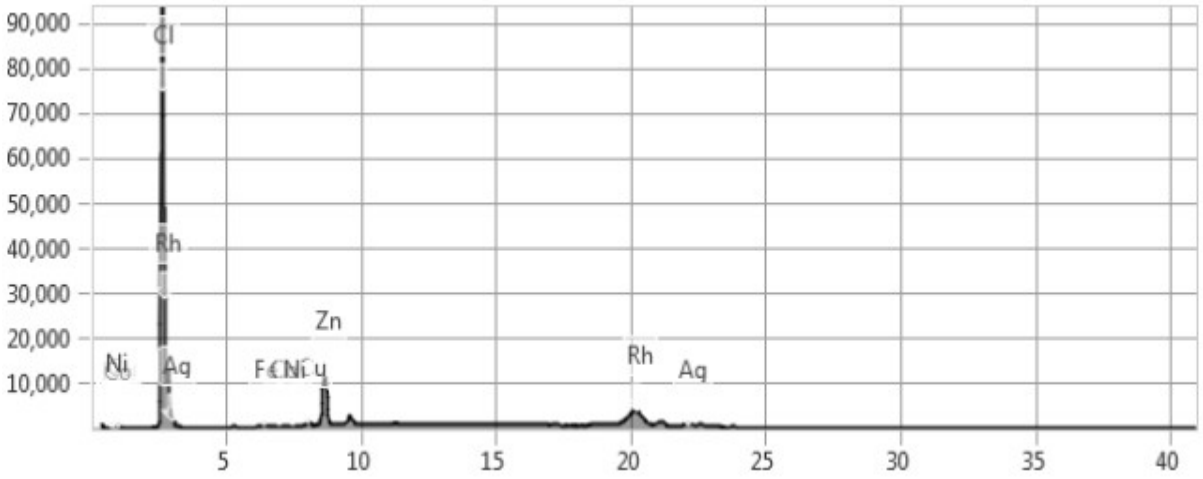
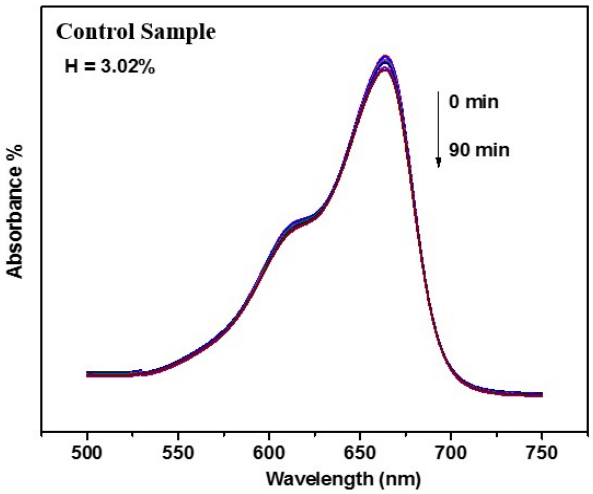
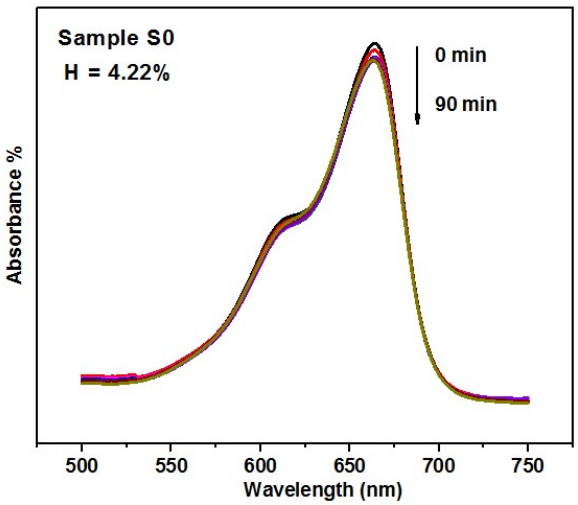
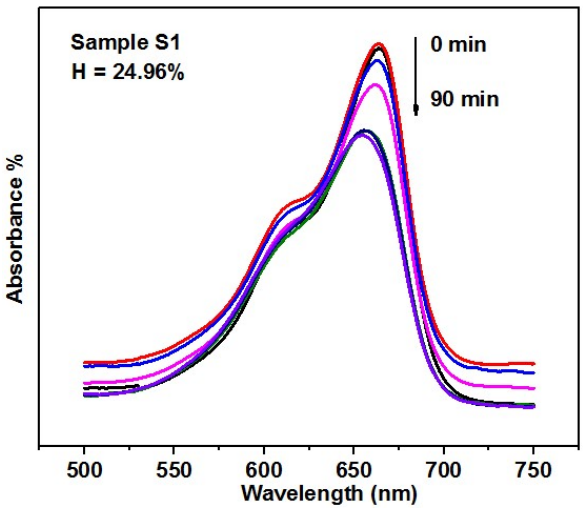


Figure S1. XRF analysis result for Ag@ZnO/MgAC samples


Control Sample
H = 3.02%
0 min
90 min
Absorbance %
500
550
600
650
700
750
Wavelength (nm)


Sample S0
H = 4.22%
0 min
90 min
Absorbance %
500
550
600
650
700
750
Wavelength (nm)


Sample S1
H = 24.96%
0 min
90 min
Absorbance %
500
550
600
650
700
750
Wavelength (nm)

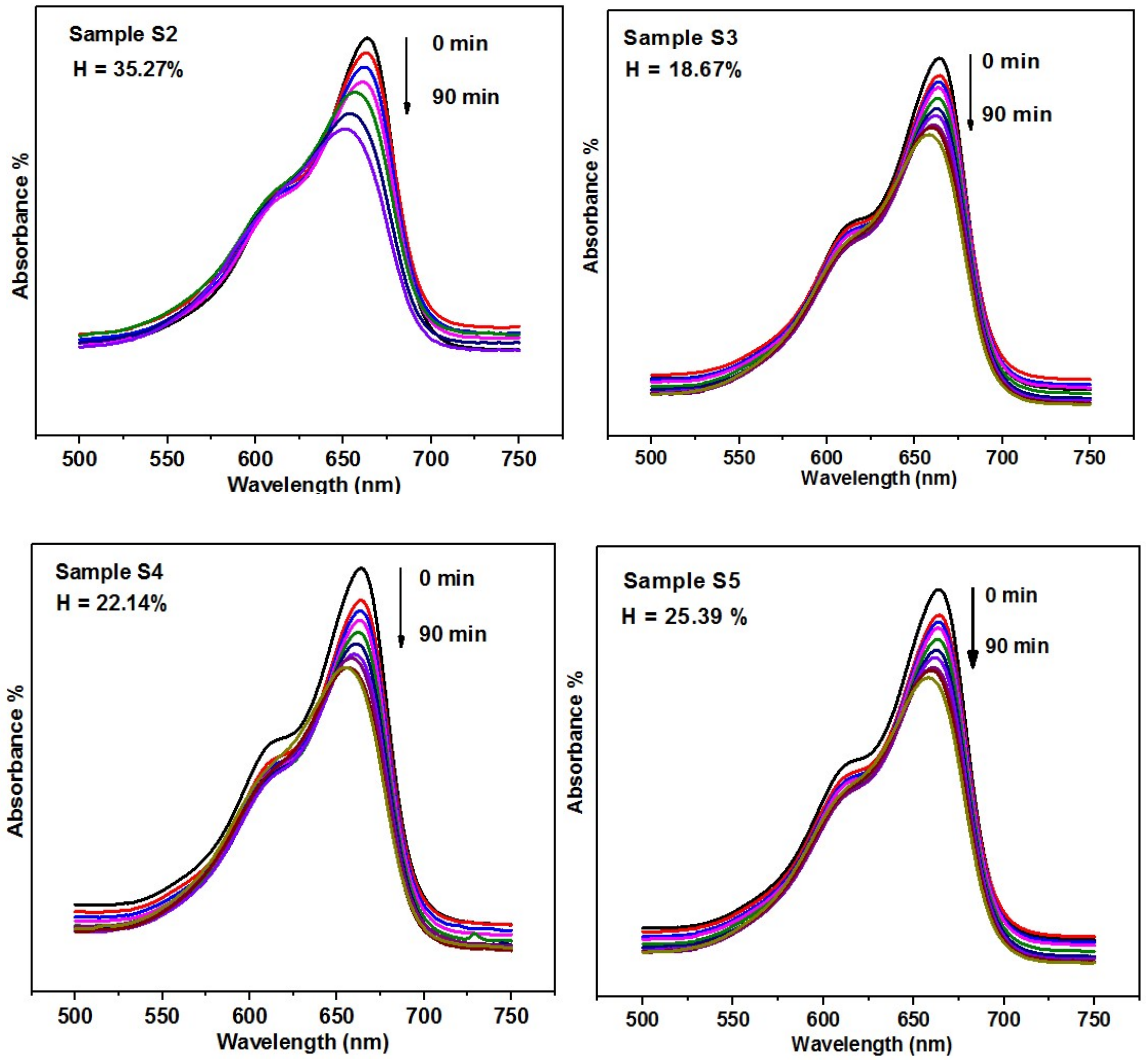


Figure S2. Absorption spectra of the MB solutions with different degradation time under visible light irradiation for control sample, Ag@ZnO sample (S0) and various Ag@ZnO/MgAC samples (S1-S5)