

## Supplementary Materials

# Novel Pt-Ag<sub>3</sub>PO<sub>4</sub>/CdS/Chitosan Nanocomposite with Enhanced Photocatalytic and Biological Activities

Mahsa Kiani <sup>1</sup>, Mojtaba Bagherzadeh <sup>1,\*</sup>, Reyhaneh Kaveh <sup>1</sup>, Navid Rabiee <sup>1</sup>, Yousef Fatahi <sup>2,3,4</sup>, Rassoul Dinarvand <sup>2,3</sup>, Ho Won Jang <sup>5</sup>, Mohammadreza Shokouhimehr <sup>5,\*</sup>, and Rajender S. Varma <sup>6,\*</sup>

<sup>1</sup> Department of Chemistry, Sharif University of Technology, P.O. Box 11155-3516, Tehran 14155-6451, Iran; mahsa.kiani88@gmail.com (M.K.); reyhanehkaveh@yahoo.com (R.K.); nrabiee94@gmail.com (N.R.)

<sup>2</sup> Department of Pharmaceutical Nanotechnology, Faculty of Pharmacy, Tehran University of Medical Sciences, Tehran 14155-6451, Iran; youseffatahi@gmail.com (Y.F.); dinarvand@tums.ac.ir (R.D.)

<sup>3</sup> Nanotechnology Research Center, Faculty of Pharmacy, Tehran University of Medical Sciences, Tehran 14155-6451, Iran

<sup>4</sup> Universal Scientific Education and Research Network (USERN), Tehran 15875-4413, Iran

<sup>5</sup> Department of Materials Science and Engineering, Research Institute of Advanced Materials, Seoul National University, Seoul 08826, Korea; hwjang@snu.ac.kr

<sup>6</sup> Regional Center of Advanced Technologies and Materials, Palacky University, Šlechtitelů 27, 78371 Olomouc, Czech Republic

\* Correspondence: bagherzadeh@sharif.edu (M.B.); mrsh2@snu.ac.kr (M.S.); varma.rajender@epa.gov (R.S.V.)

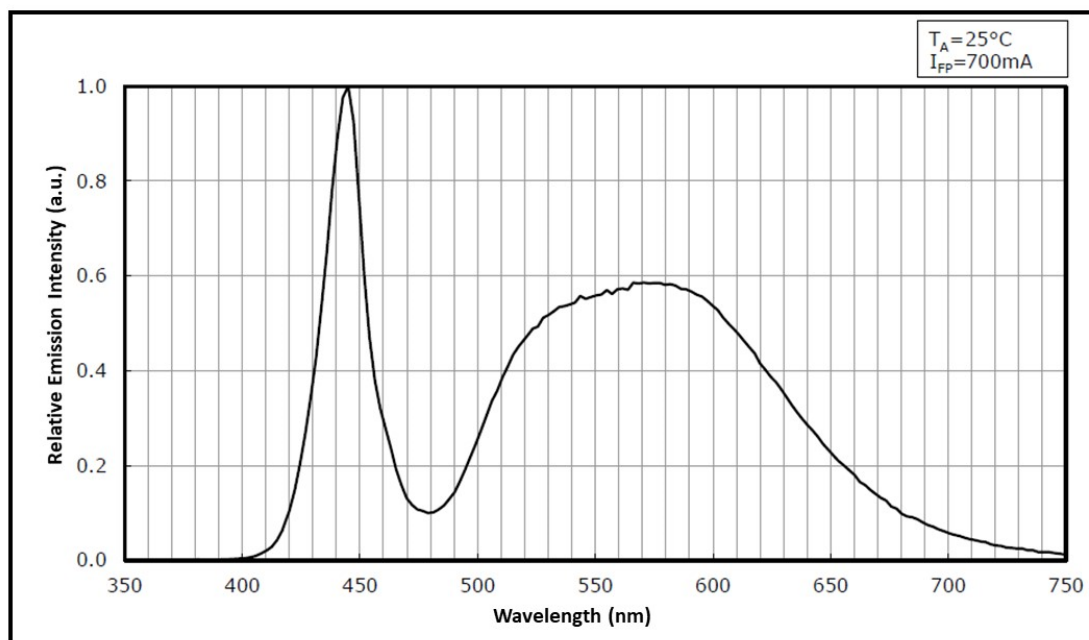


Figure S1. The emission wavelength of the light source of NVSWE21AT.

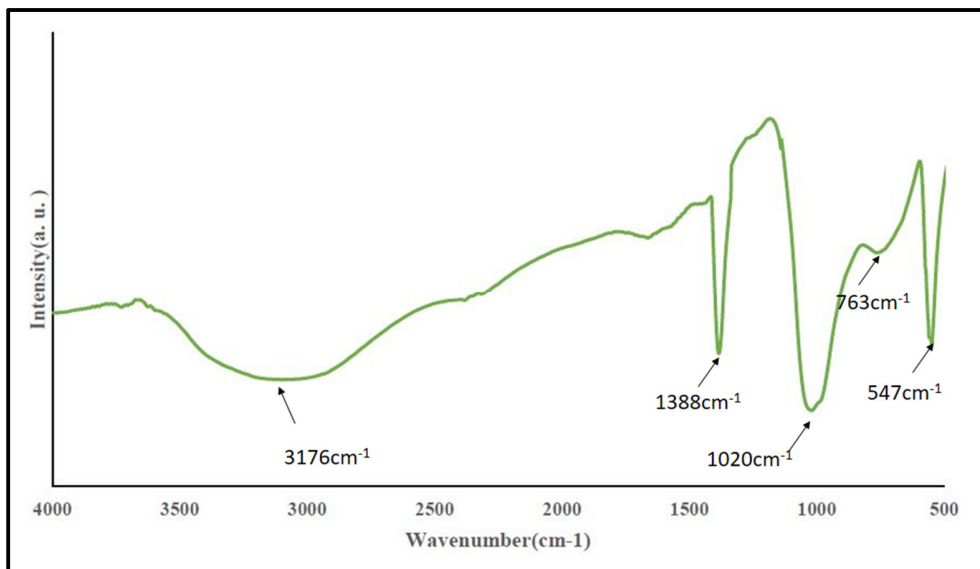


Figure S2. FT-IR spectrum of  $\text{Ag}_3\text{PO}_4$  [1].

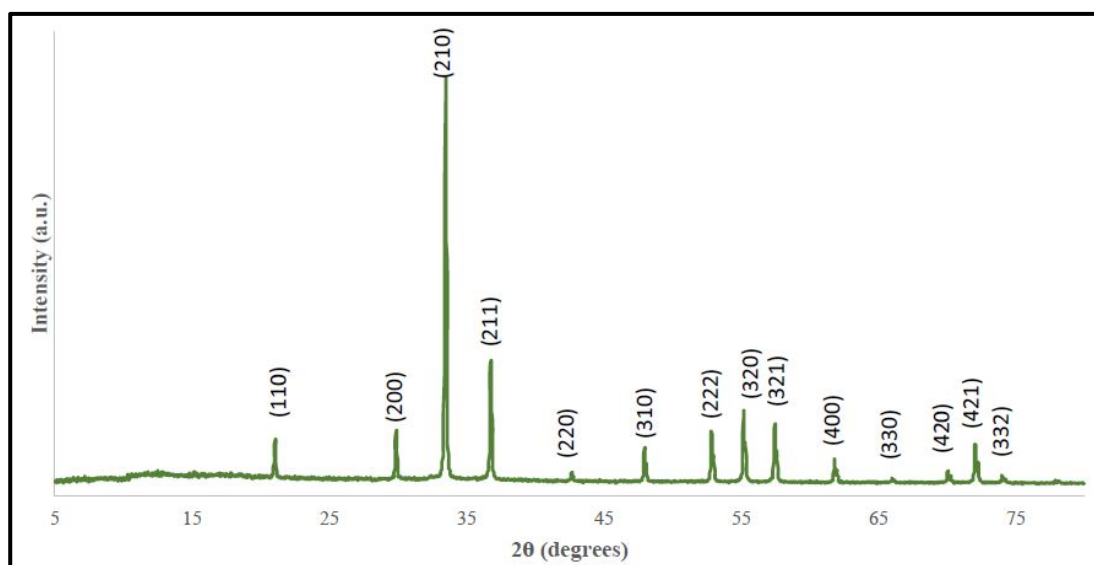
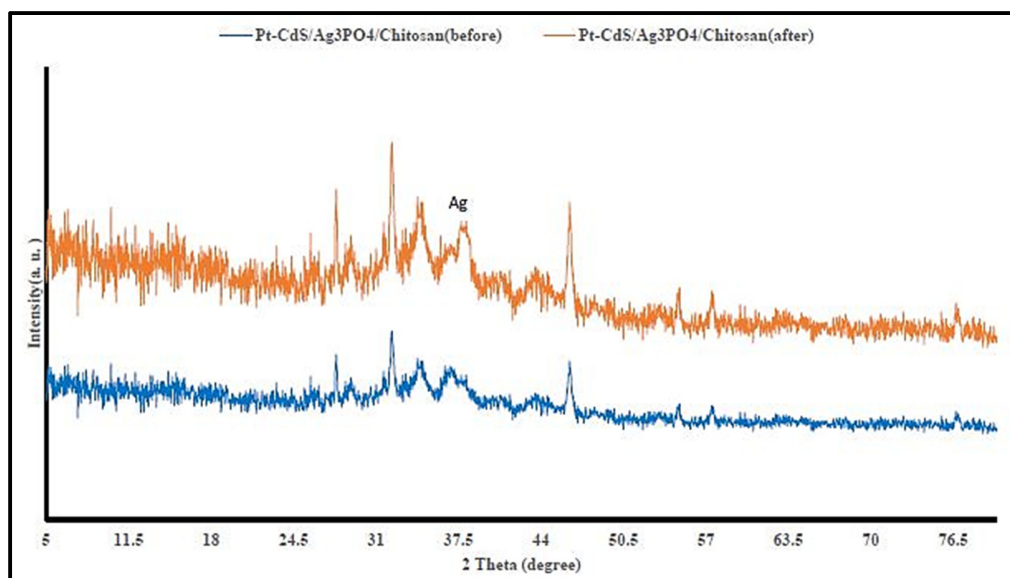
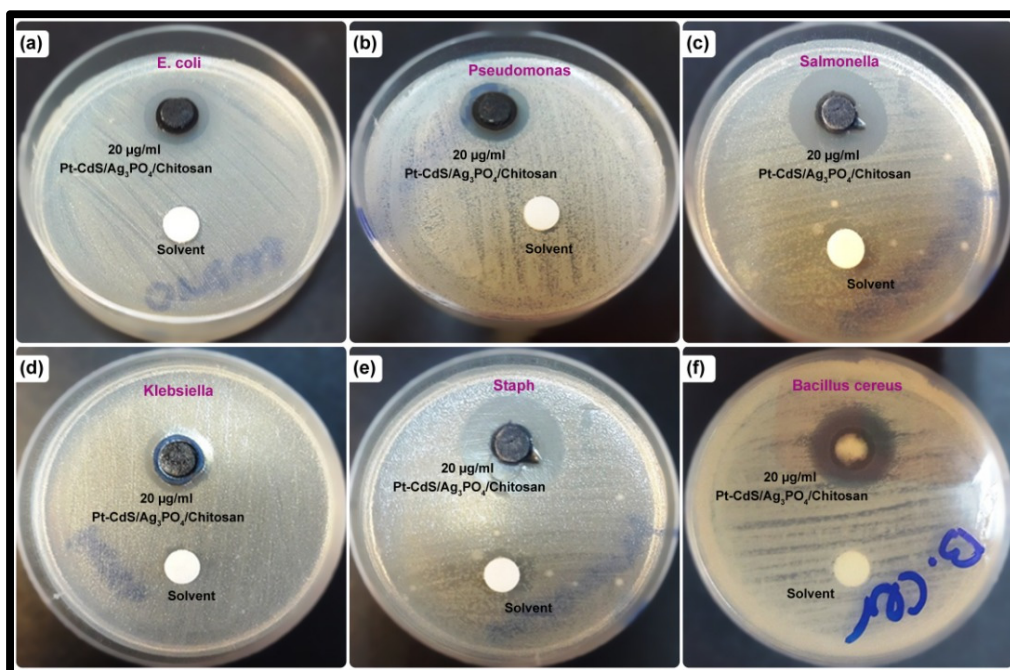


Figure S3. XRD patterns of  $\text{Ag}_3\text{PO}_4$ . Reprinted with permission from [1].



**Figure S4.** XRD pattern of  $\text{Ag}_3\text{PO}_4/\text{CS}/\text{CdS}$  nanocomposites before and after four cycling runs.



**Figure S5.** Antibacterial activity picture of the prepared samples at 20  $\mu\text{g}/\text{mL}$  under visible light were tested by well diffusion method on the model of assorted bacterium (a) *E. Coli* (b) *Pseudomonas aeruginosa* (c) *Salmonella typhimurium* (d) *Klebsiella pneumoniae* (e) *Staphylococcus aureus* (f) *Bacillus cereus*.

#### References:

1. Bagherzadeh, M.; Kaveh, R. New Magnetically Recyclable Reduced Graphene Oxide  $\text{rGO}/\text{MFe}_2\text{O}_4$  ( $\text{M} = \text{Ca}, \text{Mg}$ )/ $\text{Ag}_3\text{PO}_4$  Nanocomposites With Remarkably Enhanced Visible-light Photocatalytic Activity and Stability. *Photochem. Photobiol.* **2018**, *94*, 1210–1224.