

Synthesis of M-Ag₃PO₄, (M= Se, Ag, Ta) Nanoparticles and their Antibacterial and Cytotoxicity Study

Faiza Qureshi^{1,2}, Muhammad Nawaz^{2*}, Mohammad Azam Ansari³, Firdos Alam Khan⁴,
Mahmoud M. Berekaa⁵, Samar A. Abubshait^{2,6}, Rayyanah Al-Mutairi², Alok K. Paul⁷,
Veeranoot Nissapatorn⁸, Maria de Lourdes Pereira^{9*}, and Polrat Wilairatana¹⁰

- ¹ Deanship of Scientific Research, Imam Abdulrahman Bin Faisal University, P.O. Box 1982, Dammam 31441, Saudi Arabia
 - ² Department of Nano-Medicine Research, Institute for Research and Medical Consultations (IRMC), Imam Abdulrahman Bin Faisal University, P.O. Box 1982, Dammam 31441, Saudi Arabia
 - ³ Department of Epidemic Disease Research, Institutes for Research and Medical Consultations (IRMC), Imam Abdulrahman Bin Faisal University, P.O. Box 1982, Dammam 31441, Saudi Arabia
 - ⁴ Department of Stem Cell Research, Institute for Research and Medical Consultations (IRMC), Imam Abdulrahman Bin Faisal University, P.O. Box 1982, Dammam 31441, Saudi Arabia
 - ⁵ Environmental Health Department, College of Public Health, Imam Abdulrahman Bin Faisal University, P.O. Box 1982, Dammam 31441, Saudi Arabia
 - ⁶ Department of Chemistry, College of Science and Basic & Applied Scientific Research Centre, Imam Abdulrahman Bin Faisal University, P.O. Box 1982, Dammam 31441, Saudi Arabia
 - ⁷ School of Pharmacy and Pharmacology, University of Tasmania, Hobart, TAS 7001, Australia
 - ⁸ School of Allied Health Sciences, World Union for Herbal Drug Discovery (WUHeDD), and Research Excellence Center for Innovation and Health Products (RECIHP), Walailak University, Nakhon Si Thammarat 80160, Thailand
 - ⁹ CICECO-Aveiro Institute of Materials & Department of Medical Sciences, University of Aveiro, 3810-193 Aveiro, Portugal
 - ¹⁰ Department of Clinical Tropical Medicine, Faculty of Tropical Medicine, Mahidol University, Bangkok 10400, Thailand
- * Correspondence: mnmuhammad@iau.edu.sa (M.N.);
mlourdespereira@ua.pt (M.d.L.P.)

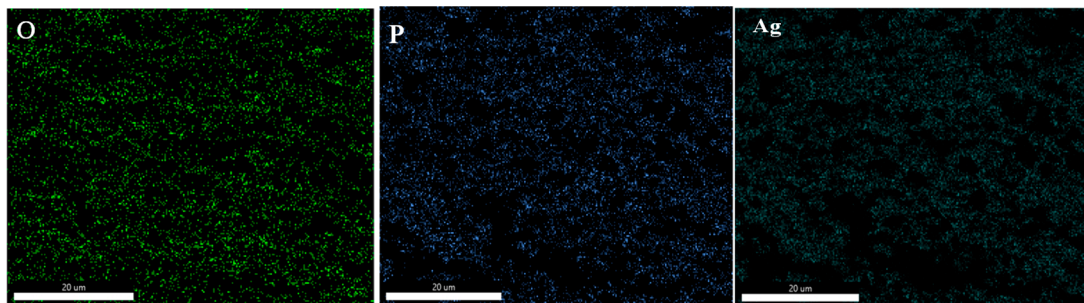
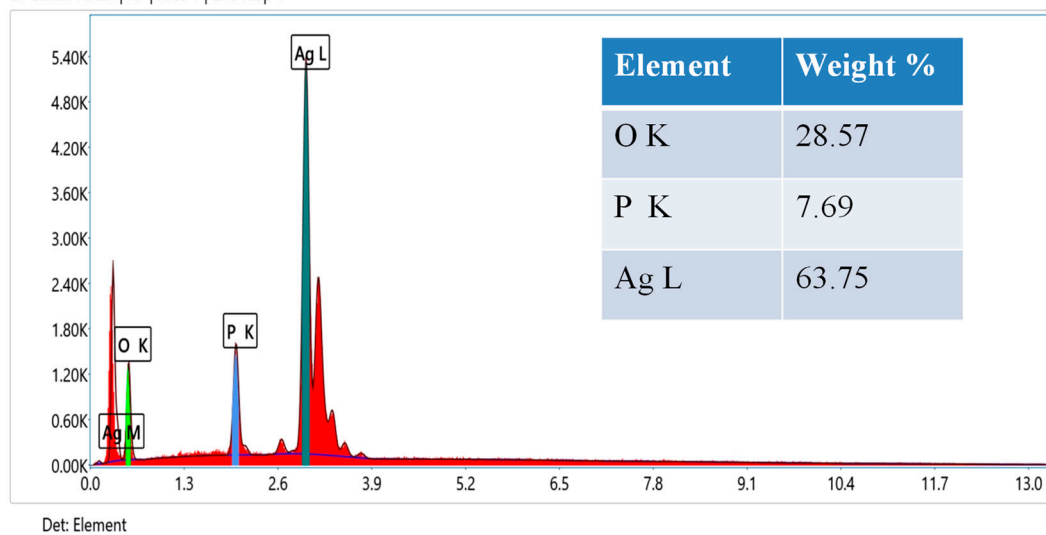


Figure S1. EDX spectrum and elemental (O, P, Ag) mapping of Ag_3PO_4 nanoparticles.

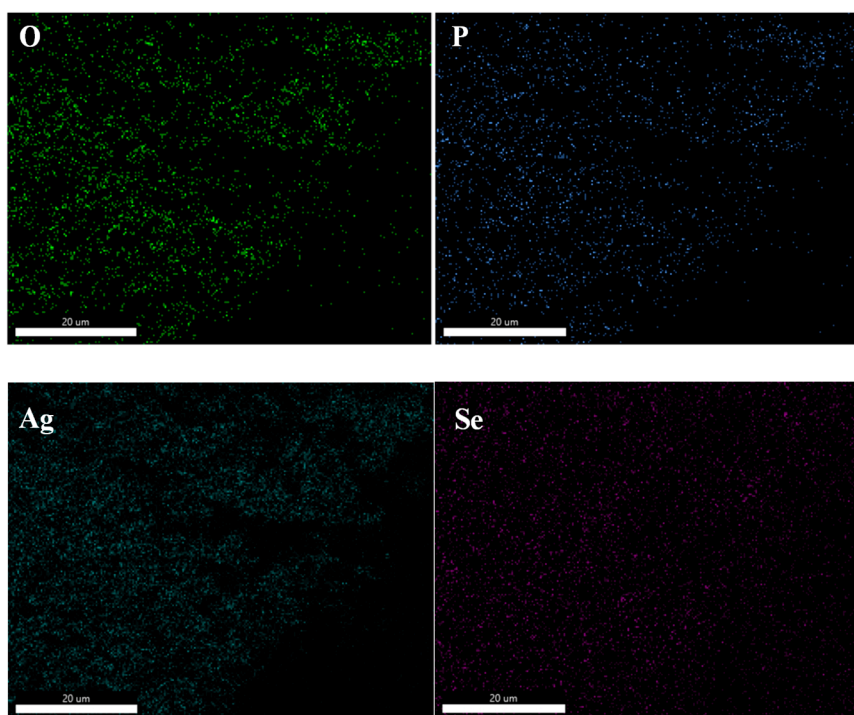
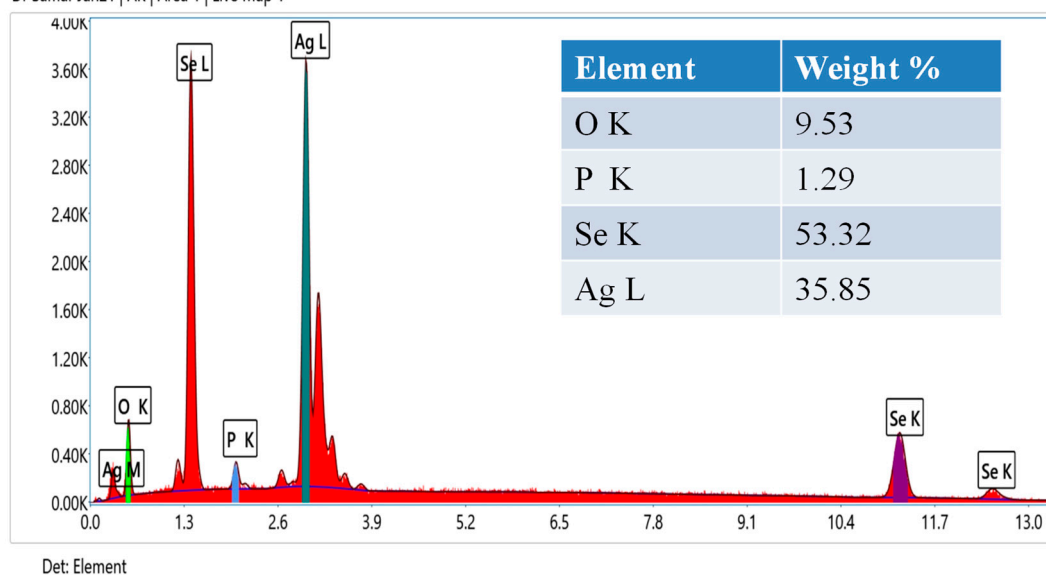


Figure S2. EDX spectrum and elemental (O, P, Ag, Se) mapping of Se-Ag₃PO₄ nanoparticles.

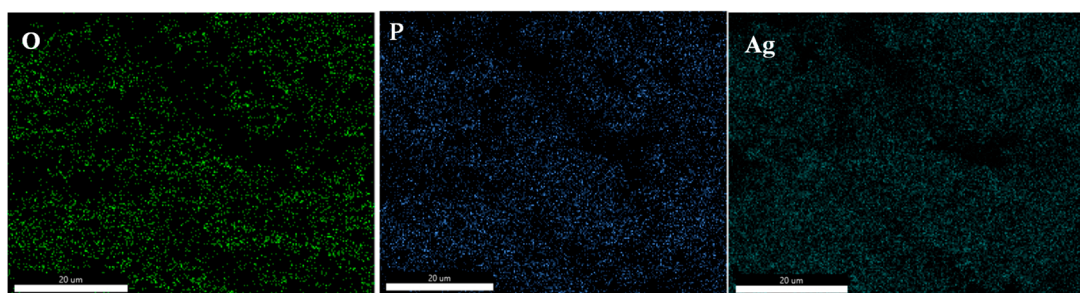
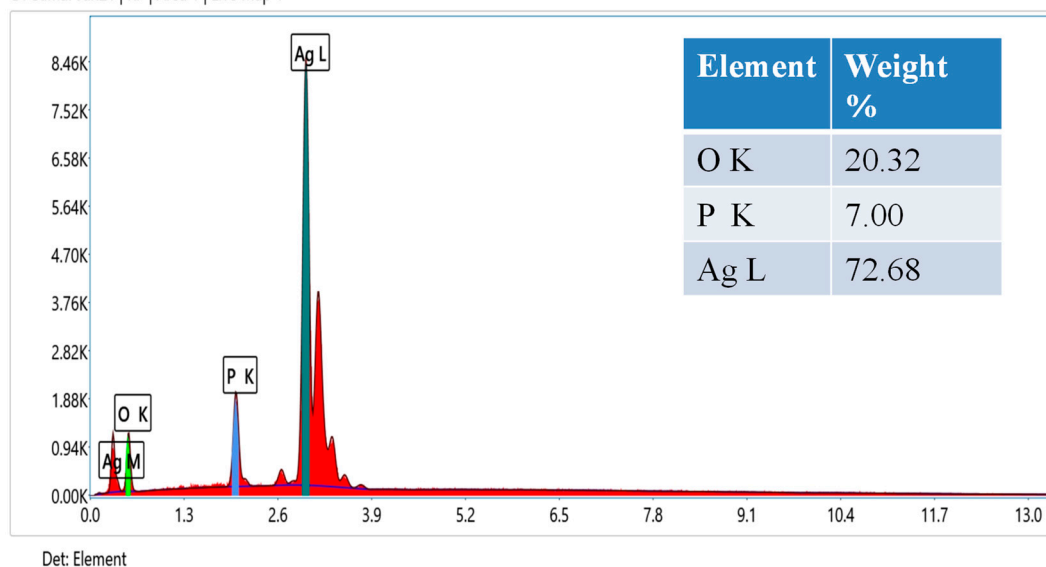


Figure S3. EDX spectrum and elemental (O, P, Ag) mapping of Ag-Ag₃PO₄ nanoparticles.

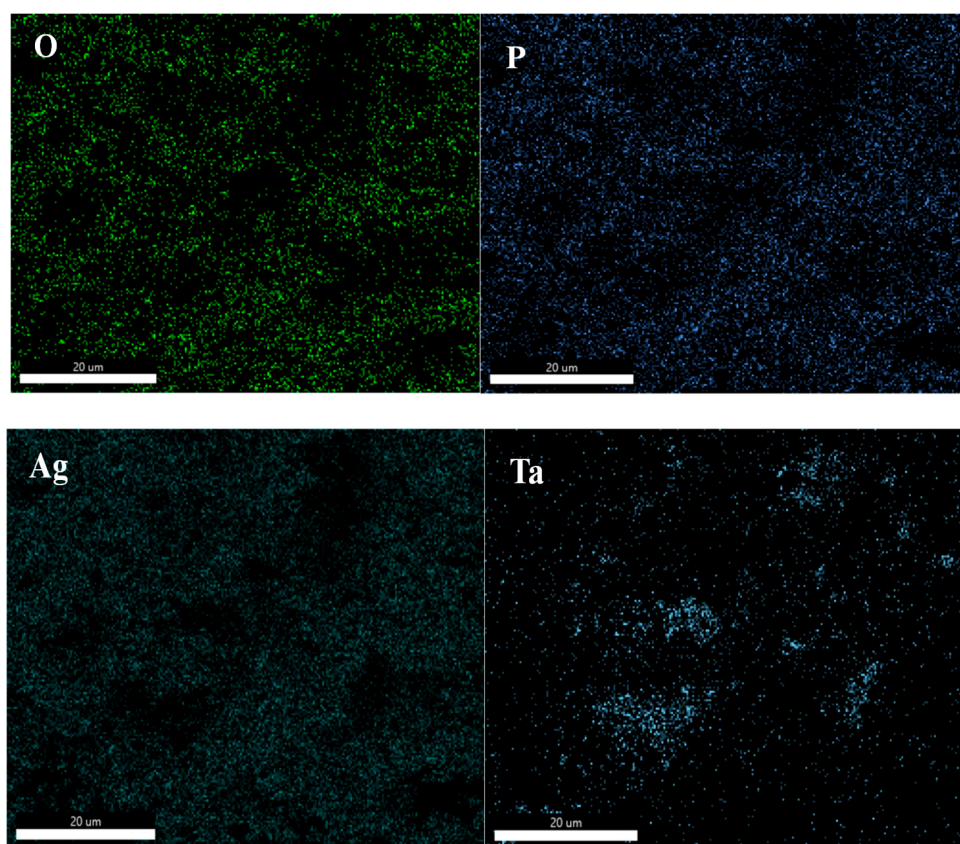
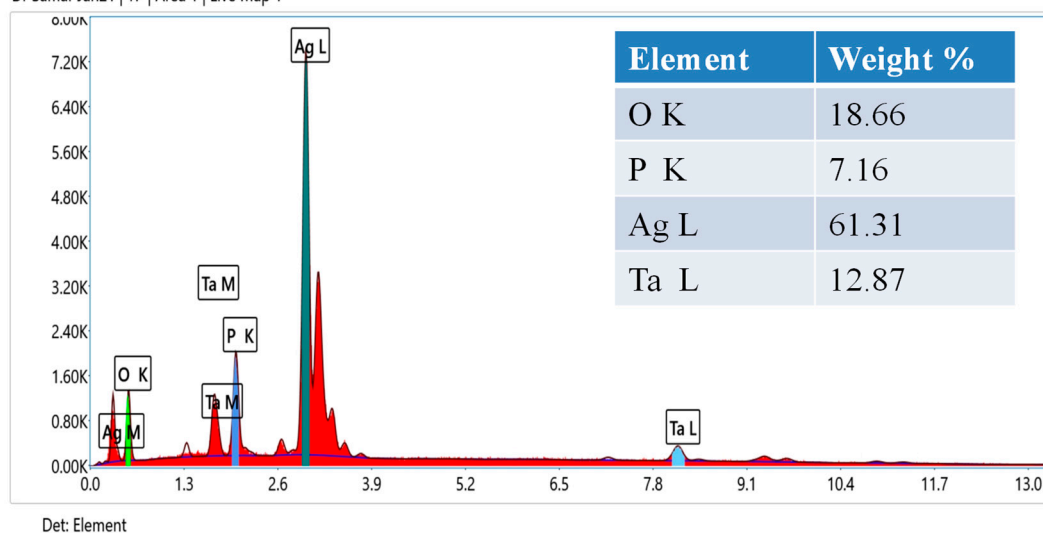


Figure S4. EDX spectrum and elemental (O, P, Ag, Ta) mapping of Ta-Ag₃PO₄ nanoparticles.

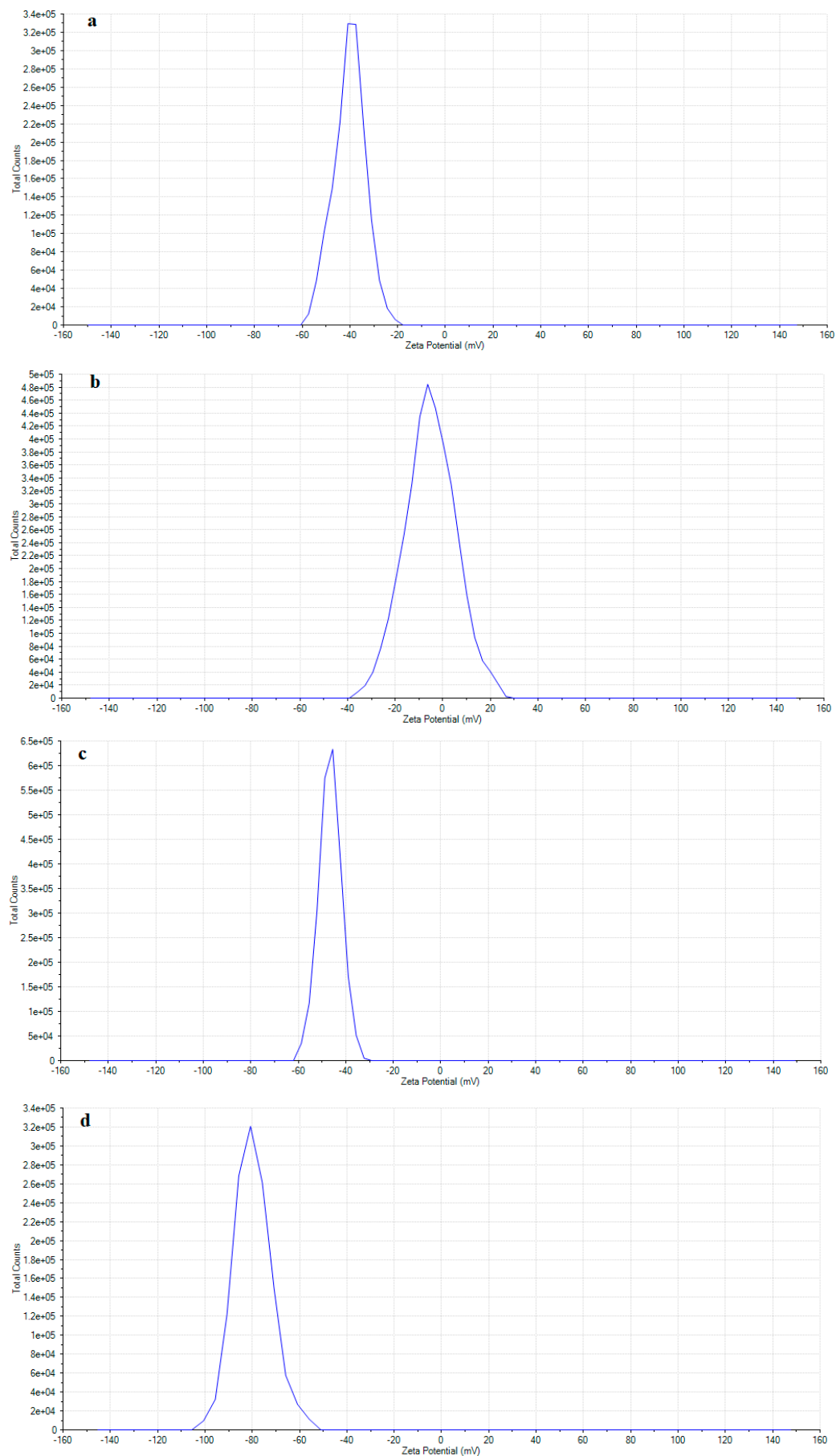


Figure S5. Zeta potential of Ag_3PO_4 (a), $\text{Se-Ag}_3\text{PO}_4$ (b), $\text{Ag-Ag}_3\text{PO}_4$ (c), $\text{Ta-Ag}_3\text{PO}_4$ (d) nanoparticles.

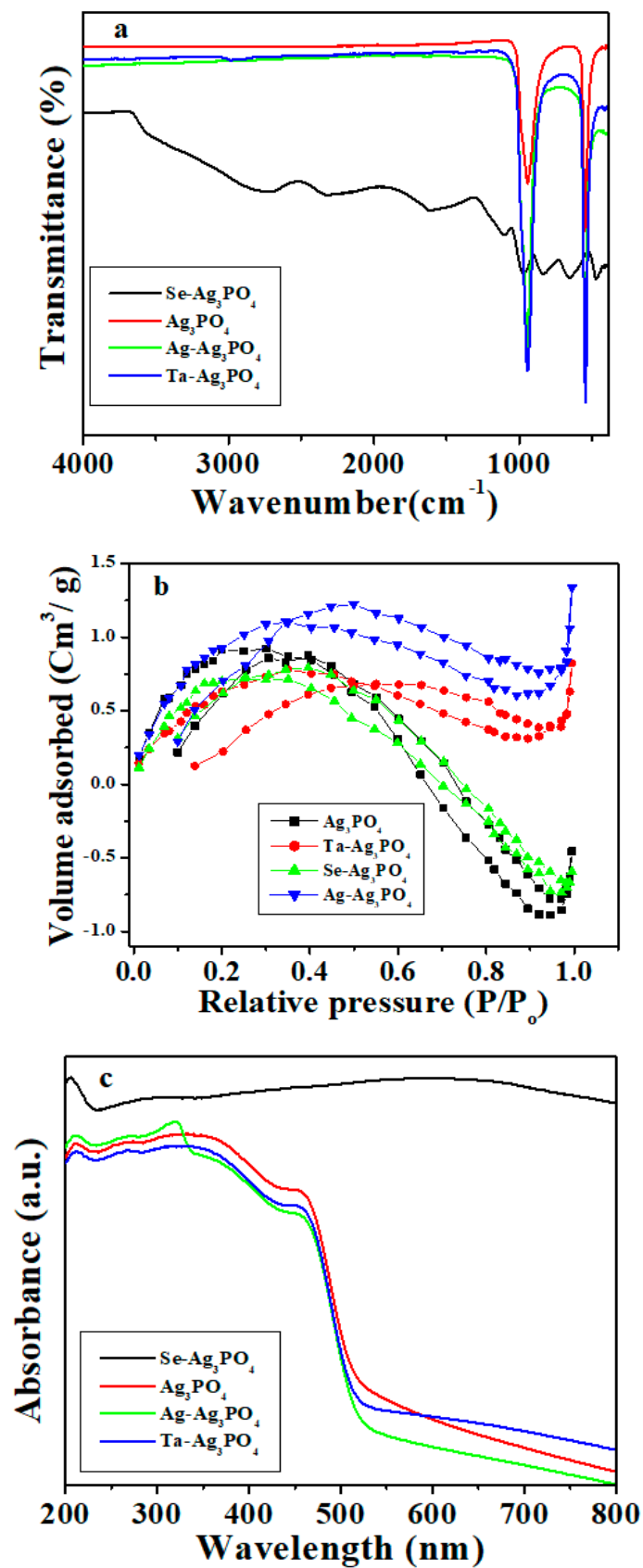


Figure S6. FTIR spectra (a), N_2 -adsorption-desorption isotherms (b) and UV-Visible spectra (c) of Ag_3PO_4 , $\text{Se-Ag}_3\text{PO}_4$, $\text{Ag-Ag}_3\text{PO}_4$, and $\text{Ta-Ag}_3\text{PO}_4$ nanoparticles.