Abstract

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Antibacterial application for synthesis, analysis and characterization of quaternary alloys nanoparticles

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Abstract

Green technique has been employed to synthesize the transition metals-based metal oxides quaternary alloys nanoparticles. The structural properties are investigated by X-ray diffraction (XRD) to determine structural parameters and crystallite size. XRD peaks index numbers and intensities are varied with the atomic number. The study of morphology for the mentioned quaternary alloys nanoparticles is analysed by scanning electron microscopy (SEM) to measure the grain size. The optical properties are investigated via ultra violet visible (UV-vis) and Fourier-transform infrared spectroscopy (FTIR) to reveal the changing of absorption, transmission, reflection and bandgap as the atomic number changes for verifying optical dielectric constant and refractive index models. The obtained results suggest the mentioned quaternary alloys nanoparticles are very suitable for potential application in antibacterial treatment.

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Biography

Prof. Dr. Yarub Al-Douri from American University of Iraq, Sulaimani. winner of World's Top 2% Scientist Career-Long Citation Impact by Stanford University, USA 2020, World's Top 2% Scientists by Stanford University, USA 2020, OeAD Award, Austria 2020, Japan Society for the Promotion of Science (JSPS) Award 2019, Asian Universities Alliance (AUA) Award 2019, Iraqi Forum for Intellectuals and Academics Award (IFIA) 2019, TWAS-UNESCO Associateship (Twice) Award 2015 & 2012 and Best Paper Award at Global Conference on Energy in UK 2015, the total is 69 awards. Al-Douri has initiated Nanotechnology MSc Program and Nano Computing Laboratory in Malaysia.