

Critical green routing synthesis of silver NPs using jasmine flower extract for biological activities and photocatalytical degradation of methylene blue

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Abstract

Herin, we prepared silver NPs using jasmine flower extract. The green synthesis process reports a eco-friendly, nontoxic, cost-effective and simple approach to the synthesis of metal and metal oxide nanoparticles. Extract of jasmine flower acts as capping as well as stabilizing agent. The average crystalline size of the XRD pattern is estimated to be 40 nm. FT-IR (Fourier Transform Infrared) spectra confirm the existence of Ag NPs. The UV-Visible spectrum exhibits an absorption peak of between 380 and 440 nm. Structural analysis for silver nanofibers reveals with SEM and TEM technique. The antimicrobial activity of silver NPs was tested for both grams positive and negative bacteria by Agar well diffusion method. Methylene blue is used as a pollutant dye. Silver nanoparticles result in a maximum degradation efficiency of 78% at the end of 120 minutes.

Biography:

Awais Ahmed has obtained his B.Sc., M.Sc., and Ph.D. in Inorganic and Analytical Chemistry from Faculty of Science, Al-Azhar University, Egypt. He was awarded his Ph.D. in perovskite solar cells (February 2017). Also, he obtained two diplomae from Inner Mongolia Institute of Scientific and Technological, Hohhot, China 2015, and the second one from the Institute of New Energy, Wuhan, China, 2017. He works as Research Assistant Professor at the Department of Electronic and Magnetic Materials, Central Metallurgical Research & Development Institute (CMRDI), Egypt. He is awarded Talent Young Scientific (TYSP) Postdoctoral Research Fellow position funded by the Chinese Ministry of Science and Technology (MOST) and organized by North China Electric Power University, Beijing, China, 2017-2018.

Publications:

1. Urban planning and building smart cities based on the Internet of Things using Big Data analytics
2. Real-time big data analytical architecture for remote sensing application
3. Smart cyber society: Integration of capillary devices with high usability based on Cyber-Physical System

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