Joint Event on

Euro Structural Biology & Clinical Trials and NanoPharma

March 18-19, 2019 | Paris, France

Synthesis of ofloxacin assisted metal nanoparticles for drug delivery to fight parasitic infection

Mehwish Shabbir

NCEAC- University of Sindh, Pakistan

This research work is based on synthesis of ofloxacin assisted silver nanoparticles (AgNPs), it's application in treatment and diagnosis of parasitic infections. Ofloxacin is an antibiotic, for the first time we used it as capping and reducing agent to synthesize AgNPs. One of the great advantage of this research work is synthesis of nanoparticles with economical, reliable and less time consuming method with better chemical composition and stability. AgNPs have been employed in numerous applications such as disinfectants, cleaning agents and applied medicinally to reduce infections and to prevent bacterial colonization in human skin. In this research ofloxacin AgNPs were synthesized by a well-known chemical reduction method, in which ofloxacin was used (to convert Ag^+ to Ag^0). The first indication of formation of Ag (0) NPs was observed by UV-Visible Spectroscopy which excited the typical surface plasmon absorption maxima at 390 nm. Later, x-ray diffraction (XRD), Scanning Electron Microscopy (SEM), Fourier Transform Infrared Spectroscopy (FTIR) results investigated and analyzed the morphology, showed sponge like structure with crystalline nature and synthesized AgNPs were in the size range of 2 to 27 nm. Ofloxacin assisted AgNPs were sensitive to detect, detected Vermox (a drug), the color variation of AgNPs was changed from yellow to white after addition of Vermox which was observed with naked eye. Observing all the results of research work, it was concluded that ofloxacin assisted AgNPs are cost saving, rapid, novel and could be used for treatement and diagnosis of various parasitic infections inside humans and animals.

mehwishabasi17@gmail.com

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