

## **Preparation and Structural Analysis of Nano Ciprofloxacin by Fourier Transform Infra-Red Spectroscopy, X-Ray Diffraction and Semi Electron Microscope (SEM)**

**Authors :** Shahriar Ghammamy, Mehrnoosh Saboony

**Abstract :** Purpose: to evaluate the spectral specification (IR-XRD and SEM) of nano ciprofloxacin that prepared by up-down method (satellite mill). Methods: the ciprofloxacin was minimized to nano-scale with satellite mill and its characterization evaluated by Infrared spectroscopy, XRD diffraction and semi electron microscope (SEM). Expectation: to enhance the antibacterial property of nano ciprofloxacin in comparison to ciprofloxacin. IR spectrum of nano ciprofloxacin compared with spectrum of ciprofloxacin, and both of them were almost agreement with a difference: the peaks in spectrum of nano ciprofloxacin was sharper than peaks in spectrum of ciprofloxacin. X-Ray powder diffraction analysis of nano ciprofloxacin shows the diameter of particles equal to 90.9 nm (on the basis of Scherrer equation). SEM image shows the global shape for nano ciprofloxacin.

**Keywords :** antibiotic, ciprofloxacin, nano, IR, XRD, SEM

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