

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

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**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 enhances 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 were sharper than peaks in spectrum of ciprofloxacin. X-Ray powder diffraction analysis of nano-ciprofloxacin shows the diameter of particles equal to 90.9nm. (on the basis of Scherer Equation). SEM image shows the global shape for nano-ciprofloxacin.

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

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