

## **Abstract**

The significance of green synthesis remains noteworthy, despite the availability of physical and chemical methods for nanoparticle production. The process of green synthesis results in the production of nanoparticles that possess characteristics such as non-toxicity, rapid reproducibility, and time efficiency. The potential of biomolecules sourced from diverse plant and microbial species to function as catalysts in the synthesis of silver nanoparticles exhibits significant potential. The nanoparticles are further characterized by UV-VIS spectroscopy, FTIR, and SEM. The confirmation of silver nanoparticles' formation is achieved by the maximum absorbance at a wavelength of 420 nm, as well as the identification of different functional groups present. The scanning electron microscope (SEM), with a diameter of 31 nm, verifies the spherical morphology. The evaluation of in-vitro drug transport is conducted by the utilization of the dialysis tube method subsequent to nanoparticle manufacturing. Approximately  $87.71 \pm 1.49\%$  of the Cefadroxil drug is encapsulated within silver nanoparticles. However, the drug is administered at two different pH levels, specifically 6.8 and 7.4. The release of drug from nanoparticles observed 42.32% at pH 7.4 and 57.18% at pH 6.8.