CHAPTER 3
AIMS AND OBJECTIVES

In the present investigation, rapid, simple, novel and cheap methodology utilizing green technology has been developed for the fabrication of AgNPs and AuNPs using different plant extracts in order to be utilization of in several environmental and biological fields. These nanoparticles were studied and found to be very rich in phytochemical constituents, thus it can be a kind of gift for pharmaceutical industry. The medicinal or herbal energetic compounds present in the leaf extract trim down the silver ions to form silver nanoparticles and gold ions to form gold nanoparticles, which would be further used for therapeutic applications. The major objectives of this research work are as following.

1. To screen the effective and valuable biological sources such as plants for the synthesis of metallic (silver and gold) nanoparticles.
2. To characterize the biosynthesized metallic (silver and gold) nanoparticles by using various analytical techniques such as UV-Vis spectroscopy, Fourier Transform Infra-red (FTIR) analysis, Dynamic Light Scattering (DLS), Transmission Electron Microscopy (TEM) and Field Emission Scanning Electron Microscopy (FESEM) analysis coupled with EDX.
3. To investigate the Kinetics of biosynthesized metallic (silver and gold) nanoparticles.
4. To investigate the antibacterial and antifungal activity of biosynthesized metallic (silver and gold) nanoparticles with the activity of reference antibiotics against human pathogens.
5. To investigate the *in vitro* cytotoxicity assay study of biosynthesized metallic (silver and gold) nanoparticles.
6. To investigate the *in vivo* approach of biosynthesized metallic (silver and gold) nanoparticles for biomedical application.