4.0 PLAN OF WORK

1. Literature survey
2. Procurement of drug and excipients
3. Preformulation studies
   a) Solubility studies
   b) Melting point determination
   c) Compatibility studies
   d) Determination of $\lambda_{\text{max}}$
4. Formulation Composition
5. Preparation of Polylactic co-glycolic acid nanoparticles containing Simvastatin by Precipitation - solvent disposition method. (Part-I)
6. Preparation of Chitosan nanoparticles containing Lovastatin by Inotropic gelation method. (Part-II)
   a) Particle size analysis
   b) Entrapment efficiency
   c) Surface charge -zeta potential
   d) Percent process yield and drug content
   e) Fourier Transform Infra Red Spectroscopy (FTIR)
   f) Differential Scanning Calorimetry (DSC)
   g) Powder X-Ray Diffraction Studies (PXRD)
   h) In vitro release studies
   i) Surface morphology by Scanning Electron Microscopy (SEM)
   j) Transmission Electron Microscopy (TEM)
10. In vivo bioavailability studies on albino rabbits model (Part-I and Part-II)
11. Preparation of tablet of freeze dried nanoparticle and evaluate in vitro drug release study compared results with marketed formulations. (Part-I and Part-II)
12. Stability studies at different conditions of temperature and relative humidity as per ICH guidelines. (Part-I and Part-II)
13. Data compilation and analysis of results.
Plan of work | Chapter 4

**WORK PLAN TREE**

- Literature survey
- Selection of polymer
- Selection of drugs and excipients

- Preparation of primary trial batches
- Preformulation studies
- Procurement of drugs and excipients

- Development of method
- Experimental design
- Characterisation of Formulation batches

- Preparation & evaluation of NP’s Tablet
- Pharmacokinetic studies
- Antihyperlipidemic activity

- Stability studies
- Data compilation and analysis of results
PREFORMULATION STUDY

- Melting point
- Determination of $\lambda_{\text{max}}$
- Calibration curve by UV
- Calibration curve by HPLC
- FTIR study
- Solubility study
Formulation and Evaluation of Nanoparticles For Better Drug Bioavailability

**Plan of work**

**Chapter 4**

**Characterisation of Nanoparticles**

- Particle size
- % Entrapment efficiency
- In vitro drug release study
- Freeze drying
- SEM study
- TEM study
- In vivo study

**Polydispersity Index**

- Zeta potential
- % drug content
- % process yield
- FTIR study
- DSC study
- PXRD study

**Antihyperlipidemic activity**

**Determination of Pharmacokinetic parameters**