CHAPTER - 4

OBJECTIVE AND PLAN OF WORK

The objective of the present work to carry out the development of the controlled drug delivery systems for Alfuzosin by using Hydroxylpropylmethyl Cellulose (HPMC K100M), Eudragit RLPO, Guar Gum 8000cP and for Citicoline by using Hydroxypropylmethyl Cellulose (HPMC K100M), Hydroxypropyl cellulose (HF), Eudragit RSPO, Eudragit RLPO.

To achieve the above mentioned objective the research work planned in four Phases

Phase 1. Identification and sourcing of raw materials.

Phase 2. Pre-formulation studies

1. Alfuzosin Hydrochloride
   a) Solubility studies
   b) Drug – Polymer interaction studies by DSC, FTIR.
   c) Development of analytical procedure for dissolution by UV method.
   d) Development of analytical procedure for estimation of drug content by HPLC method.

2. Citicoline sodium
   a) Solubility studies
   b) Drug – Polymer interaction studies by DSC, FTIR.
c) Development of analytical procedure for dissolution by UV method.

d) Development of analytical procedure for estimation of drug content by HPLC method.

Phase 3: Formulation development

1. Formulation and evaluation of Alfuzosin hydrochloride extended release tablet
   a. To develop formulations by using different polymers with different concentrations.
   b. To evaluate the developed formulation for their physical and chemical properties.
   c. To study the in vitro drug release of the different formulations.
   d. To conduct the stability studies of the optimized formulation.

2. Formulation and evaluation of citicoline controlled release Tablets
   a. To develop different formulations by using different polymers with different concentrations.
   b. To evaluate the developed formulation for their physical and chemical properties.
   c. To study the in-vitro drug release of the different formulations
d. To conduct the stability studies of the optimized formulation

Phase 4: In-vivo Studies

1. To conduct *in vivo* pharmacokinetic study of the selected Alfuzosin extended release tablets in suitable animal model.

2. To conduct *in vivo* pharmacokinetic study of the selected Citicoline controlled release tablets in suitable animal model.