V. OBJECTIVE AND PLAN OF WORK

Conventional drug delivery system has little or no control over the drug release, and effective concentration at the target site. This kind of dosing pattern may results in constantly changing, unpredictable plasma concentrations. The rate and extent of drug absorption from conventional formulations may vary greatly depending on the factors such as-

Physico-chemical properties of the drug
Presence of excipients
Physiological factors such as presence or absence of food, PH of the gastro-intestinal tract (GI) and so on.\textsuperscript{114,115}

Many controlled release dosage forms have been devised by various researchers to modulate and release a drug over an extended period of time. The majority of these systems are matrix-based, and their principal drug release mechanism is based on drug diffusion through the matrix system.
Which is altered by
-the pH of the medium
-presence of food
-the body’s physiological factors (G.I. motility)

All of which can cause difficulty in controlling the drugs release rate. Another delivery method used is the osmotic drug delivery system. Unlike matrix systems, Osmotic systems use the principle of osmosis as delivery force to release the drug from the system, and the release rate is unaffected by the body’s pH and other physiological factors.

So, the objective of the present work was to design osmotically driven oral drug delivery system(tablet).

Non steroidal anti-inflammatory category of drug was chosen under which Eterocoxib, celecoxisb and lornoxicam was selected as model drugs.

Eterocoxib, celecoxisb and lornoxicam has been used since long time as a anti-inflammatory, analgesic agent which are selective COX-2 inhibitors and used widely
in long term pain management therapy including arthritis. These drugs are already available in conventional tablets in the market for pain management.

In addition, it has been reported that oral administration of all these drugs by fast release from conventional dosage form often induces various side effects such as irritation, ulceration or perforation of intestinal wall, mucosal damage, bleeding and gastroenteritis. Therefore, a long acting formulation that can sustain the action of these drugs with controlled slow release from dosage form over an extended period of time would be very beneficial.

The aim and objective of present study is to develop osmotically controlled oral drug delivery system containing non steroidal anti-inflammatory drug, which would release the drug at zero order rate and to attempt for optimizing the formula for the steady and constant release of drug required for therapeutic effect. Simultaneously the key parameters of the subjected formulation will be identified and attempt will be made for their characterization & optimization. The present study also aims to make simple procedures and techniques that will be economically affordable with better patient compliance. In present investigation attempts are also made to develop and characterize the osmotically controlled oral drug delivery system (tablet) which is more beneficial for the patients who are on long term therapy of analgesic and anti-inflammatory agents(e.g. in arthritis), due to such long term therapy the patients are suffering from various GI side effects so special emphasis is given to patient compliance without compromising the schedule and dose of therapy..

The main objective of the study was to develop osmotically driven oral drug delivery system of Eterocoxib, celecoxib and lornoxicam to be taken once daily. It is also objective of present study to evaluate and do the in vitro characterization of developed osmotic pump. Potassium chloride and Sodium chloride were used as the osmogent. The tablets were coated with cellulose acetate as the semipermeable membrane containing castor oil as a plasticizer and microporous membrane was developed by using polyethylene glycol as a plasticizer and pore forming agent.
PLAN OF WORK

Thus to achieve the above goal following experimental study was aimed:

- Literature survey.
- Procurement of raw material.
- Preformulation studies of drugs and polymers such as
  UV spectra characterization, IR
  spectra characterization, Flow
  properties, Compressibility,
  Density, etc.
- Preparation of core tablets of Lornoxicam
- Evaluation of uncoated tablets:
  Uniformity of weight Friability
  Hardness
  Drug content
- Coating of core tablets using coating material such as Cellulose acetate.
- Evaluation of coated tablet.
- *In-vitro* release studies.
- Statistical analysis of the obtained results and selection of optimized batch.
  Graphical representation of the data obtained.