CHAPTER-2

OBJECTIVES

Suppositories are medicated solid drug delivery systems generally intended for use in rectum\(^1\). Several unwanted side effects and disadvantages inherent to oral therapy led to focused attention on the rectal route for administering drugs, especially, in Europe. Rectal suppositories are much favored in infants, children’s and old aged patients with problems in oral insertion of the medicament. These are also the dosage forms of choice for senseless, semi-senseless and those suffering from nausea, vomiting, gastrointestinal ulcers, etc. Extreme facts affecting the consumption of medicines from suppository are ano-rectal etiology, suppository vehicle and the physic-chemical characteristics of the drug\(^34\).

Suppositories generally carry medicaments such as emollients, astringents, antiseptic and local anesthetics to exert local action on the rectal mucosa. They are often used as a means of projecting medicaments, such as hypnotics, tranquilizers, antispasmodic, anti-emetics, anti-hypertensives, anti-inflammatory agents (NSAIDs) etc. for systemic action. The advantage of administration of such medicaments in the form of suppositories is that portal (hepatic) circulation is bypassed and thus preventing or retarding the biotransformation (first pass effect) of drug in liver. Similarly pH conditions and activities of gastrointestinal enzymes are bypassed. Drugs such as NSAIDs that cause gastric irritation leading to gastrointestinal ulceration and bleeding can be safely administered by rectal route. Sometimes suppositories can give blood levels comparable even to the intravenous injections, except for a 30 minutes lag period. In view of the above considerations, suppository can be established as having great strength as
appropriate dosage form in treating the constant health problems such as rheumatoid arthritis and cardiac ailments, especially among the aged individuals.

Atenolol\(^{35}\), an antihypertensive agent prescribed used in treating high blood pressure, angina pectoris and emergency treatment of cardiac disorders, but its oral bioavailability is only 50% because of its poor absorption from gastrointestinal tract, on the other hand the drug has a few gastrointestinal side effects such as nausea, vomiting and diarrhea.

Aceclofenac\(^{35}\) (ACL) is a modern Non Steroidal Anti Inflammatory Drug (NSAID) frequently utilized in the management of different rheumatic disorders, causes GIT disorders such as hyperacidity, etc., which can be avoided by delivering the drug through rectal route as a suppository.

In the propose research work an initiative has been taken to design and report the result of rectal suppositories of atenolol an antihypertensive drug and aceclofenac a NSAID by utilizing various hydrophillic & hydro-phobic polymers such as gelatin, Poly ethylene Glycol 400 and hydrogenated vegetable oil employing propylene glycol as plasticizing and beeswax to produce toughening effect. Fatty base are utilized for aqueous drugs and a hydrophillic base for a drug, which is not soluble in water\(^2\).