ABSTRACT

The anatomical structure and the protective physiological process of the eye exert a strong defense against ocular drug delivery. This is the reason why conventional ocular dosage forms exhibit extremely low bioavailability. Limited absorption of the drug through the lipophilic corneal barrier is mainly due to short precorneal residence time related to the tear turn-over, rapid nasolacrimal drainge of instilled drugs from the tear fluid and non-productive absorption through the conjunctiva. Only a small proportion (1-3%) of the applied drug penetrates the cornea and reaches intraocular tissues. For these reasons, new ocular delivery systems need to be developed.

To optimize ocular drug delivery systems, the following characteristics are required:

A good corneal penetration.

- A prolonged contact time with the corneal epithelium.
- A simplicity of instillation for the patient.
- A non-irritative and comfortable form (the system should not provoke lachrymation and reflex blinking).
- A ppropriate rheological properties.

The aim of this work is to formulate Ketorolac tromethamine in new ocular delivery systems. That have prolonged precorneal residence time, thus achieving higher absorption rates.

To achieve this goal, the work in this thesis is divided into:

- CHAPTER I: FORMULATION AND EVALUATION OF KETOROLAC TROMETHAMINE OCULAR GELS.

- CHAPTER II: FORMULATION AND EVALUATION OF KETOROLAC TROMETHAMINE IN-SITU FORMING OCULAR HYDROGELS.
- CHAPTER III: STABILITY STUDY OF KETOROLAC TROMETHA- MINE OCULAR GELS AND IN-SITU FORMING HYDROGELS.
- CHAPTER IV: IN-VIVO PERFORMANCE OF KETOROLAC TROMETHAMINE ON THE INFLAMMED EYE OF RABBIT.