Abstract

Acyclovir is a guanosine analogue, a potent antiviral drug of low toxicity. This deoxiguanosine analogue antiviral drug requires a virus specific enzyme for conversion to active metabolite that inhibits DNA synthesis and viral replication. Acyclovir has low oral bioavailability and short half life. In the present research work Acyclovir *in situ* gelling systems were prepared by using Ion activated methods.

The formulations were evaluated for several parameters like viscosity, drug-polymer interaction, clarity, pH measurement, drug content(%), sterility, *in vitro* drug release, eye irritation.

At pH 6.0 the prepared formulations were in liquid state, however as the alginate and gelrite ions present in the prepared formulations come in contact with the cations present in the tear fluid, the solution gets transformed into gel with high viscosity.

Increasing the viscosity of a drug formulation in the precorneal region will leads to an increased bioavailability, due to slower drainage from the cornea.

Finally, the formulation was evaluated for ocular safety in rabbit by the procedure of modified Draize technique. Two months of stability study was carried out according to ICH guidelines.

Keywords: *in situ*, Acyclovir, Ion activated, HPMC E50LV, Sodium alginate, Gelrite.