Various inflammatory ocular conditions have been treated with corticosteroids for more than fifty years. Triamcinolone has been injected directly into the vitreous with the hope of increasing local concentration and duration of therapeutic activity in recent years. Reported side effects of intravitreal steroids include cataract development, increased intraocular pressure, endophthalmitis, retinal detachment, vitreous hemorrhage, and pseudohypopyon. One of the alternatives that has been proposed is intraocular nonsteroidal anti-inflammatory drugs (NSAIDs). NSAIDs inhibit cyclooxygenase enzymes and, thereby, the synthesis of endogenous proinflammatory prostaglandins. They have been used effectively for treating postoperative inflammation and cystoid macular edema and for inhibiting angiogenesis. Inhibition of choroidal neovascularization and prevention of early diabetic retinopathy via TNF alpha suppression are other beneficial effects reported.

The aim of this study is to prepare and characterize chitosan nanoparticles loaded with commercially available ketorolac tromethamine for ocular use. 100-300 nm chitosan nanoparticles are prepared with ionic gelation method. Atomic force microscopy, zeta sizer results are compatible to each other. In-vitro release studies showed that, having the ketorolac in the form of a nanoparticulate suspension results in drug release for a prolonged period of time. Ex-vivo and in-vivo studies will give more information about residence time of nanoparticles on the cornea surface, systemic distribution and drug concentrations in vitreous.