Background
- Endophthalmitis is an infection of intraocular fluids like vitreous humor and ocular tissues. To combat the disease, the formulation which provides sufficient concentration in posterior segment is required.

Aim
- The purpose of this research was to develop the microemulsion based in situ gelling system containing Moxifloxacin for prophylaxis and treatment of the posterior segment diseases like endophthalmitis.

Materials and Methods
- Moxifloxacin was encapsulated in small droplets owing to form microemulsion, and then the formed droplets were dispersed in a polymer solution that converted into gel upon triggered by the electrolyte present in the tear fluid.

Results and Discussion
- Formulation approach provides better absorption, penetration, retention and improves bioavailability of the drug. The average concentration reached into vitreous humor from topical microemulsion in situ gelling formulation was ~0.4 µg/ml, which is far more than concentration required for therapeutic effect (i.e. > 0.047 µg/ml or >>MIC90 for S. Epidermidis, a pathogen commonly responsible to cause endophthalmitis).

Conclusion
- Novel microemulsion based in situ gelling formulation could be potential drug delivery system for treatment of posterior segment diseases like endophthalmitis.