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Design and evaluation of polymeric ocular drug delivery system

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The objective of the present study was to prepare ocular inserts of Moxifloxacin. The inserts were fabricated by solvent casting technique, with an aim by achieving once a day administration in the treatment of conjunctivitis. Inserts were evaluated for film thickness, weight variation, drug content, percentage moisture absorption and loss. In-vitro drug release studies were done using bi-chambered donar receiver compartment model. The optimized formulations were subjected to in-vivo studies using rabbits as an animal model and stability studies to assess the effectiveness of the formulations. Finally in-vitro and *in-vivo* correlation was established. *In-vitro* drug release data was treated according to zero, first, Korsemeyer Peppas and Higuchi kinetics to access the mechanism of drug release. Formulations were found to be uniform in physicochemical parameter with a fewer variations. Plasticizer was found to influence in mechanical properties as well as modify the drug release rate of the films. Prepared ocular inserts exhibited desired release within 24 h and found to be strongly revealing the efficacy of *in vitro-in vivo* correlation. From stability studies inserts were remained stable both physically and chemically. No burst effect but a prolonged drug release was observed from all formulations. Thus it achieves target such as increased residence time, prolonged drug release, reduction in frequency of administration and may improve the patient compliance.