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(54) Title of the invention : DEVELOPMENT AND EVALUATION OF PREDNISOLONE ACETATE CONTAINING POLYMERIC MICELLES LOADED IN SITU GEL FOR THE TREATMENT OF OCULAR INFLAMMATION

<p>(51) International classification :A61K0009000000, A61K0009107000, A61P0027020000, A61K0047340000, A61K0031573000</p> <p>(86) International Application No :NA Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA Filing Date :NA</p> <p>(62) Divisional to Application Number :NA Filing Date :NA</p>	<p>(71)Name of Applicant : 1)MS. NIKITA KAUSHAL Address of Applicant :M.M. College of Pharmacy, Maharishi Markendeshwar (Deemed to be University), Mullana, Ambala, Haryana, India ----- 2)DR. MANISH KUMAR 3)DR. ABHISHEK TIWARI 4)DR. VARSHA TIWARI 5)DR. NIDHI GUPTA 6)MR. PANKAJ POPLI 7)DR. VIPIN SAINI 8)DR. MANINDER PAL SINGH 9)DR. AJAY SHARMA Name of Applicant : NA Address of Applicant : NA</p> <p>(72)Name of Inventor : 1)MS. NIKITA KAUSHAL Address of Applicant :M.M. College of Pharmacy, Maharishi Markendeshwar (Deemed to be University), Mullana, Ambala, Haryana, India ----- 2)DR. MANISH KUMAR Address of Applicant :M.M. College of Pharmacy, Maharishi Markendeshwar (Deemed to be University), Mullana, Ambala, Haryana, India ----- 3)DR. ABHISHEK TIWARI Address of Applicant :Pharmacy Academy, IFTM University, Moradabad, Uttar Pradesh, India ----- 4)DR. VARSHA TIWARI Address of Applicant :Pharmacy Academy, IFTM University, Moradabad, Uttar Pradesh, India ----- 5)DR. NIDHI GUPTA Address of Applicant :M.M. College of Pharmacy, Maharishi Markendeshwar (Deemed to be University), Mullana, Ambala, Haryana, India ----- 6)MR. PANKAJ POPLI Address of Applicant :M.M. College of Pharmacy, Maharishi Markendeshwar (Deemed to be University), Mullana, Ambala, Haryana, India ----- 7)DR. VIPIN SAINI Address of Applicant :M.M. College of Pharmacy, Maharishi Markendeshwar (Deemed to be University), Mullana, Ambala, Haryana, India ----- 8)DR. MANINDER PAL SINGH Address of Applicant :School of Pharmaceutical Sciences, CT University, Ludhiana, Punjab, India ----- 9)DR. AJAY SHARMA Address of Applicant :Delhi Pharmaceutical Sciences and Research University, Pushp Vihar, New Delhi, India -----</p>
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(57) Abstract :

Development of polymeric micelles have been done for the treatment of allergic Uveitis. It also lessens the disadvantages of topical insertion, which involves poor patient adherence, poor absorbance in stroma and many more adverse effects. The investigation was focussed at creating a polymeric micellar system of Prednisolone Acetate for Ocular Drug Delivery. Thin Film Hydration method was used for preparing polymeric micelles. The evaluation of polymeric micelles formulations was done for checking various parameters like entrapment efficiency, micelle size, in vitro permeation, ex vivo transcorneal permeation, in vivo ocular irritation and histology. Optimized micelles formulation (PA3), with the lowest micelle size of 90.31 nm, least polydispersity value of 0.158, highest entrapment efficiency of $96.0 \pm 0.17\%$, and a cumulative drug permeation of $85.12 \pm 1.26\%$ in 8h, was selected to develop pH-sensitive micelles loaded carbopol in situ gel. The Optimized in situ gel (A4) proved to be superior in its ex vivo transcorneal permeation when compared with Market Preparation and pure drug suspension, exhibiting $42.32 \pm 0.87\%$ Permeation with zero-order kinetics ($r^2 = 0.9944$) across goat cornea. Transmission Electron microscopy revealed spherical polymeric micelles trapped in the gel matrix. A series of experiments showed hydration capability, non-irritancy, and histologically safe gel formulation that had appropriate handling characteristics. In the management of uveitis, a controlled release, pH-sensitive ophthalmic preparation which can administer the medicament via topical application to the eye's anterior segment has been created

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