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Formulation and Evaluation of Solid Lipid Nanoparticles of Tropicamide for Ocular Drug Delivery

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Vikas Bhatt[*]*, Rajni Karakoti, Arun Kumar Singh*

Sanskar College of Pharmacy & Research, NH-24,Opp-Jindalnagar, Ghaziabad
R.V. Northland Institute of Pharmacy, Greater Noida
Amrapali Institute of Technology and Sciences, Lamachaur-Haldwani

Email ID- editorjohp@gmail.com

ABSTRACT

Objective: The purpose of the present study was to develop solid lipid nanoparticles (SLN) of tropicamide for ocular drug delivery

Method: SLNs were successfully prepared by Micro emulsion based method followed by ultra-sonication using different lipids in different ratios. They are evaluated by various evaluation parameter like morphology, particle size, zeta potential, entrapment efficiency, drug content, drug permeation and drug release.

Result: The particle shape, mean size, poly dispersity index (PDI), zeta potential, EE (%) and drug content of optimized formulation were found to be spherical, 142.4 nm, 0.237, -12.5mv, 72.65% ±3.22%, 89.12 respectively. In vitro release studies shows that as the lipid concentration increases, the release of drug from SLN also increase up to 24 hours. Permeation of drug from optimized formulation across the isolated goat cornea shows higher permeation as compare to the plain drug solution

Conclusion: These results concludes that the drug release from the SLNs is follows the controlled drug release pattern and have optimum drug entrapment efficiency.

Keyword: Nanoparticles, Tropicamide, corneal permeation, entrapment efficiency, drug content.

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