# ACYCLOVIR ï LOADED SOLID LIPID NANOPARTICLE BASED CREAM: A NOVEL

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**Abstract**

Background Topical treatment of skin diseases needs to be strategic to ensure high drug concentration in the skin
with minimum systemic absorption. The present investigation was enthused by the possibility to develop solid lipid
nanoparticles (SLNs) of hydrophilic drug acyclovir. Also study vitro and vivo drug delivery. Methods: Acyclovir
loaded solid lipid nanoparticles were prepared by high pressure homogenization of aqueous surfactant solutions
containing the drug-loaded lipids in the melted or in the solid state with formula optimization study. Acyclovir
loaded solid lipid nanoparticles were incorporated in cream base. The pH was evaluated and rheological study.
Drug release was evaluated and compared with drug based on simple cream. Also the release of acyclovir loaded
solid lipid nanoparticles conjugate with compritol 888ATO was compared with marketed cream. The potential of
solid lipid as the carrier for dermal delivery was studied. Results: Particle size analysis of SLNs prove small,
smooth, spherical shape particle ranged from 150 to 200 nm for unloaded and from 330 to 444 nm for acyclovir
loaded particles. The EE% for optimal formula is 72% with suitable pH for skin application. Rheological behavior
is shear thinning and thixotropic. Release study proved controlled drug release especially in formula containing
compritol88 ATO. Stability study emphasized an insignificant change in the particles properties over 6 month. Invivo

study showed significantly higher accumulation of acyclovir in stratum corneum compared with blank skin.
Conclusion: acyclovir loaded solid lipid nanoparticles might be beneficial in controlling drug release, stable and
improving dermal delivery of antiviral agent(s)

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