Chapter-2

OBJECTIVE OF THE STUDY
NANOPARTICLES DRUG DELIVERY SYSTEM

During the last five years, the interest over the nanoparticles as drug delivery carrier system has increased due to its potential of sustained release, targeting and stability, economical advantages over other carrier systems. Several strategies, such as physical and chemical methods, have been mainly used to improve the delivery of drug through the skin. During the last decades, the research of the potential of the nanotechnology for transdermal drug delivery has been mainly focused on the research on the use of Transferosomes, Ethosomes and Nanostructured lipid carriers and only a few researches have been focused on the use of Solid lipid nanoparticles and biodegradable polymeric nanoparticles.

- Maintain steady drug concentration Potential of sustained release
- Targeting and stability
- Economical advantages over other carrier systems
- Avoid hepatic first pass metabolism
- Improve patient’s noncompliance

OBJECTIVE OF THE STUDY

The main objective of the study is to incorporate the nanoparticles containing Antidiabetic drugs into transdermal patches. The transdermal patches which contain the drug can solve many problems which were faced by the diabetic patients such as the frequencies of drug administration, the pains which are faced by them at the time
of the injection. More over the patient may forget to take the drug at their regular timings and hence missing of the doses can be observed. The transdermal patches are cheaper when compared to other conventional dosage forms and so the economic burden can be decreased on the patients.

Following this general utility, the specific objectives are,

To study the effect of

- SLN, Polymeric nanoparticles on the skin permeation using Insulin, Repaglinide as model drugs
- Evaluation of physiochemical properties and invitro studies of SLN and PN.
- Naoparticulates transdermal drug delivery of blood glucose and Insulin concentration in diabetic rats (in vivo)
- Nanoparticulated transdermal drug delivery of Insulin, Repaglinide nanoparticles pharmacokinetic & pharmacodynamic parameters.