



Eudragit® L100 nanoparticles for transdermal delivery of
rosuvastatin calcium.



ABSTRACT:

The aim of this study was to prepare rosuvastatin calcium (ROC)-loaded Eudragit® L100 polymeric nanoparticles (PNPs) and investigate their ability to enhance transdermal permeation. ROC is a new generation of statins which has been approved for lipid-lowering and anticancer activities. However, its poor oral bioavailability is a limiting factor for many clinical applications. Therefore, development of an efficient transdermal formulation would significantly improve its efficacy and reduce the risk of the side effects. ROC-loaded Eudragit® L100 nanoparticles were prepared by nanoprecipitation at different drug:polymer ratios. Differential light scattering (DLS) and atomic force microscopy (AFM) were used to characterize the nanoparticles. The results showed that increasing the polymer concentration will decrease the particle size from 187.4 ± 106 nm to 44.9 ± 9.3 nm at drug:polymer ratios from 1:1 to 1:9, respectively. The particle size and entrapment efficiency (EE) of the optimized formulation were 66 nm and 58%, respectively. The *in vitro* drug release study showed pH-dependent sustained release kinetics. Moreover, nanoparticles significantly enhanced ROC permeability by 1.6-fold through rat skin. These results suggest that nanoprecipitation can efficiently produce small, homogeneous ROC-loaded PNPs suitable for transdermal skin delivery applications. PNPs will help to develop a complex ROC PNPs formulations for various dermal and transdermal applications.