Chapter 7

CONCLUSION

Oral administrations of poorly soluble drugs show irregular absorption and poor bioavailability. Poor and variable bioavailability requires frequent dosing, which leads to poor patient compliance and poor therapeutic outcome. Two poorly soluble antihypertensive drugs nebulol and felodipine have bioavailability and frequent dosing issues. For maintaining the required therapeutic level of the drug throughout the treatment period it was attempted to develop a number of stable polymeric nanoparticle formulations of nebivolol and felodipine with two different polymers Eudragit® RS100 and PLGA 50:50 using simple solvent evaporation technique.

Study shows that drug polymer combinations (nebulol-Eudragit® RS100 nanoparticles 1:4, nebivolol-PLGA50:50 1:3, felodipine-Eudragit® RS100 1:4 and felodipine-PLGA 50:50 1:3) influence the drug entrapment, drug loading and drug release from the polymeric systems. The developed nebivolol and felodipine loaded nanoparticulate systems have improved in vitro (drug release, intestinal permeation and stability study) and in vivo (toxicity, bioavailability and antihypertensive) performance compared to pure drug. The stability studies show no remarkable difference in drug potency in various storage conditions confirming the stability of the nanoparticulate system. The developed nanoparticulate systems also have the greater potential for effective antihypertensive activity after single use. The promising nanoparticulate systems of nebivolol and felodipine may be further explored to assess their suitability in human beings.