CHAPTER 5

CONCLUSION

Both a composite MIP microparticle cellulose membrane prepared by phase inversion and MIP grafted cellulose membrane demonstrates the enantioselectively controlled delivery of racemic propranolol. The phosphate buffer pH 7.4 and drug: polymer ratio of 10 was an important factor for the composite MIP microsphere cellulose membrane to gain a high selectivity. The enantioselectivity of the *S*-propranolol imprinted microsphere embedded in cellulose membrane is shown in vitro using rat skin. The composite MIP grafted membrane produced by using template:MAA:EDMA ratio of 1:3:8 give the greater enantioselectivity for release of propranolol in diffusion measurements and in vitro percutaneous penetration study. The mechanism underlying this controlled release of the *S*-enantiomer from the *S*-propranolol imprinted microsphere loaded cellulose membrane may be explained by the enantioselective interaction of this enantiomer with the *S*-propranolol imprinted microparticle in the membrane and the subsequent facilitation release of the bound enantiomer at the binding site. The mechanism for controlled release of the *R*-enantiomer from the *R*-propranolol imprinted microparticle into cellulose membrane can be explained in the same as *S*-propranolol imprinted microspheres. For composite MIP grafted membranes, the mechanism for enantioselective controlled release of the *S*-enantiomer can be outlined at that the template interacts with *S*-propranolol binding site and rebinding by the solvent and interacts with other binding site step by step through the membrane. The prepared composite MIP cellulose membranes have a potential to be developed as a transdermal drug delivery system of propranolol.