

CHAPTER V

CONCLUSIONS

The drug-loaded gelatin hydrogels were prepared at various crosslinking ratios to investigate and compare the release mechanism and the diffusion coefficient of the drugs from the drug-loaded porcine and fish gelatin hydrogels. Each hydrogel was characterized for the swelling ability and mesh size. The degree of swelling, the weight loss, and the mesh size of the both gelatin hydrogels decreased with increasing crosslinking ratio. The effects of the crosslinking ratio, mesh size, drug size, and type of gelatin were investigated on the diffusion coefficients. The diffusion coefficients of the drug from drug-loaded gelatin hydrogels decrease with increasing crosslinking ratio since the mesh size of gelatin hydrogel is larger. The diffusion coefficients of drug from drug-loaded gelatins decrease with increasing drug size, at the same crosslinking ratio and type of the gelatin matrix. The diffusion coefficients of drugs from drug-loaded fish gelatin hydrogels are higher than those compared with porcine gelatin at the same crosslinking ratio, because the fish gelatin hydrogel has the lower hydrogen bonding interaction between the gelatin and the drug compared with that of the porcine gelatin hydrogel.