CHAPTER V
CONCLUSIONS

The sulfosalicylic acid-loaded poly(vinyl alcohol) hydrogels were prepared at various crosslinkig ratios to investigate the release mechanism and diffusion coefficient of the drug from poly(vinyl alcohol) hydrogels with and without electric field. Each hydrogel was characterized for its swelling ability and mesh size. The degree of swelling, the weight loss, and the mesh size of PVA hydrogels increase with decreasing of crosslinking ratio. The diffusion coefficients were studied as a function of crosslinking ratio, mesh size, electric field strength and electrode polarity. For the effect of crosslinking ratio, the diffusion coefficient of drug from PVA hydrogels increases with decreasing crosslinking ratio because the larger mesh or pore size of the hydrogel. For the effect of electric field strength, the diffusion coefficient of drug from PVA hydrogel increases with increasing of electric field strength due to higher electrostatic force in driving the charged drug through the polymer matrix. For the effect of electrode polarity, the diffusion coefficient under cathode is much higher than that under anode or under no current because of the electrorepulsion between the chargeg drug and chargeg electrode.

It seems possible to conclude that the varying crosslinking density, applying the electric field, or by changing electrode polarity we can control and modulate the drug release kinetic.