



CHAPTER V CONCLUSIONS

Drug release characteristics from crosslinked chitosan/silk fibroin blend films by using glutaraldehyde as crosslinking agent were studied using theophylline, salicylic acid, diclofenac sodium and amoxicillin as model drugs. The blend films with 80% chitosan content gave the maximum amounts of drug releases due to the maximum degree of swelling at this blend ratio.. At chitosan content less than 80%, the amount of drug release from the blend films increased with increasing in chitosan content in the blend films. The amount of drug released at pH 2.0 was higher than at pH 5.5 and 7.2 because of the protonation of amino groups on chitosan at pH 2.0 resulting in the dissociation of hydrogen bond between chitosan and silk fibroin network. The maximum and the minimum of drug release were salicylic acid and amoxicillin, respectively. The order of the amount of released drugs from the minimum to the maximum was amoxicillin < diclofenac sodium < theophylline < salicylic acid. The sequence of initial rate of drug release from the slowest to the fastest release was amoxicillin < diclofenac sodium < salicylic acid < theophylline.