# CHAPTER V
# CONCLUSIONS AND RECOMMMENDATIONS

In this study, the PCL fibrous scaffolds were fabricated using electrospinning technology. To enhance the biocompatibility of PCL fiber mats, surface modification had been employed. The more hydrophilicity surfaces were obtained. The effect of aminolyzing time in surface modification was examined. The result shows that the aminolyzing time has no effect on mechanical properties of materials. In addition, the degradation behaviors of modified and unmodified PCL fiber mats immersed in lipase/PBS were investigated in terms of weight loss and pH change, also using DSC and SEM were investigated. According to the weight loss and morphology results, all samples lost their original structures from degradation process, the neat and activated fibers seemed to fuse and bond with each other whereas the fracture of fibers took place throughout the BSA-immobilized fiber mats. The weight loss of these fibers resulted in rising as a function of time while the pH slightly decreased due to the dissolution of acidic oligomers. The crystallinity of these fiber mats indicated that the degradation occurred in both phases, amorphous and crystalline, at the same time. As these PCL fibrous scaffolds used in bone tissue engineering, biological evaluation was investigated in terms of indirect cytotoxicity, the result reveals that none of the toxic substances was released from both modified and unmodified PCL fibrous that harmful to mouse calvaria-derived preosteoblastic cells (MC3T3-E1).

Recommendations for the future work would be to study the enzymatic degradation of PCL fibrous scaffolds in dynamic system because the surrounding medium is the important factor on the polymer degradation. This research studied the static solution system whereas the condition inside the human body is circulating system and the body fluid is flowing. Therefore, the investigation of fibrous scaffolds degradation in dynamic solution system could have been simulated the *in vivo* conditions better than that of static ones.