



## CHAPTER V

### CONCLUSION AND SUGGESTION

From the all results can concluded on the following :

1. The optimal conditions for fabrication of the uniform electrospun silk fibroin (SF) fibers by electrospinning were investigated from determination of surface morphology by SEM. These conditions were the SF solution concentration of 50 % (w/v), the applied voltage of 25 kV at electrospinning distance of 15 cm and 20-gauge needle.

2. The investigation of surface characteristic of as-electrospun SF fibers and HA coating by ATR-IR were found that hyaluronic acid (HA) was coated on electrospun SF fibers.

3. Thermal decomposition of as-electrospun SF fibers and HA coating by TGA was found that the as-electrospun SF was coated with HA showed the two ranges of decomposition temperature while as-electrospun SF fibers and pure HA powders showed the main one range of decomposition temperature. These results also confirm that as-electrospun SF fibers were coated with HA.

4 The potential of electrospun SF fibers, HA coating, and SF film were used as scaffolding materials determined cytotoxicity from MTT assay. As indicated result showed that these materials were nontoxic to L929 cells, therefore, they can used as good candidates for scaffolds.

5. The ability in cell attachment and proliferation were determined by seeding HFF and HaCaT cells on each as-prepared materials. The results showed that the absorbance of electrospun SF HA coating greater than electrospun SF fibers then followed by SF films. The electrospun SF fibers were coated with HA showed the highest absorbance at initial incubated time compared with other types of scaffolding materials. The absorbance represents the number of viable cells onto these materials. Therefore, both the electrospun SF fibers and HA coating were was found to promote HaCaT and HFF cell attachment and proliferation. Both of materials may be the potential of use in

tissue engineering such as wound dressing and scaffolding materials for skin regeneration.

The above lists were exhibited that the use of as-prepared SF fibers can be achieved by electrospinning technique. Moreover, the achievement of as-prepared SF fibers and HA coating were conducted using as scaffolding materials.

#### Suggestion for the future work

From all previous results and discussions, the future work to improve this research should be focused on the following:

1. The number of viable cell on as-prepared materials decreases at the latter time in culture. Therefore, the cell differentiation test should be further investigated for confirmation the cell behaviors.
2. The effect of number of seeding cells on as-prepared scaffolding materials should be further investigated.