

CHAPTER V

CONCLUSION

The composition of chitosan/silk fibroin blend films had a large effect on the mechanical properties, physical properties, and swelling behavior of the blend films. Blending silk fibroin with chitosan resulted in an improvement in tensile strength and elongation at break, and an increase in crystallinity. On the other hand, silk fibroin enhanced the thermal stability of chitosan. The addition of crosslinking agent to the blend films enhanced the mechanical properties. Furthermore, crosslinking was very important for the swelling behavior since it enabled retention of structural integrity of the films in the acidic pH buffer solution, even though it reduced the degree of swelling of the films. The properties of chitosan/silk fibroin blend films varied strongly with respect to changes in pH, salt type, and salt concentration. Therefore, these chitosan/silk fibroin blend films had pH and salt-responsive properties.