

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

Electrospinning process was required to develop the new wound dressing by considering the ability to be the antibacterial activity and also the wound healing promoter. Therefore, Ciprofloxacin (CPF) was investigated in term of antibiotics and coconut oil was also inquired for enhancing the reepithelialization. PU film, which is transparent film showing a faster rate of wound contraction and reepithelialization and a shorter total healing time, was inspected to develop further by adding the mentioned properties. The amount of uploaded CPF in PVAc, a non-toxic adhesive used in commercial, had been considered by the MBC value which was equal to 4.90 $\mu\text{g/mL}$. However, 1.25 mg/L of CPF are used because it was the minimum concentration that was antibacterial activity when it blended with PVAc. The SEM image of electrospun fiber of PVAc with different CPF and coconut oil content comparing with pristine PVAc noted that the distribution diameter was decreased when adding much CPF but they will be declined if the oil content was mixed more. *In vitro* drug release, both in PBS (7.4) and in acetate buffer (5.5), PF1.25, PFO1.25-5, and PFO1.25-10 released quickly in initial time and then kept constant after 6 hours. Moreover, the other characteristics of fibers on film were measured by contact angle and FT-IR. For antibacterial activity test, the inhibition zones carried out obviously were tested with PF1.25, PFO1.25-5, and PFO1.25-10. For the cell viability *in vitro*, indirect cytotoxicity evaluation, PF1.25, PFO1.25-5, and PFO1.25-10 did not toxic significantly when they were evaluated by human fibroblast and mouse fibroblast cells (L929), which showed upper than 80% of cell viability. Overall, my results conclude that the introduced electrospun containing drug and oil might be an ideal biomaterial for wound dressing applications. In the further study, the electrospun fibers from adhesive as based-polymer should have more investigated for the better properties of fibers.