

## CHAPTER V

### CONCLUSION

Methanol-extraction method has successfully produced sterile *L. cuprina* larval extract which exhibited significantly potent antibacterial activity against a wide range of potentially pathogenic Gram-positive and Gram-negative bacteria that frequently colonize chronic and acute wounds.

On the other hand, amongst the four antibacterial assays employed in this study, the turbidometric assay was found to be the most sensitive in the detection of the antibacterial activity of *L. cuprina* larval extract against all bacteria tested *in vitro*. Despite the variations in the sensitivity of each adopted antibacterial assay, these assays had concurrently demonstrated the remarkable inhibitory potency of the larval extract against the Gram-negative *P. aeruginosa*.

Nevertheless, the larval extract of *L. cuprina* was proven to be highly robust and extremely thermally stable due to the ability to retain its antibacterial activity after 13 months of storage at -70°C as well as being heated at 100°C for 5 minutes, autoclaved at 121°C for 20 minutes or freeze-thawed for ten cycles.

This preliminary study revealed a potential room for the development of novel and effective natural disinfectant(s) and antibacterial agent(s) from living organisms. Hence, further research into the isolation and identification of the antibacterial agent(s) from *L. cuprina* larval extract as well as the determination of the effective dose for optimal bacterial inhibition need to be taken up in combating wound infections, particularly those caused by antibiotic-resistant bacteria. In addition, controlled clinical trials are required as well to prove the application of the medicinal *L. cuprina* larvae or larval product under clinical settings to provide clinical substantiation to practitioners and overcome the skepticism of patients and practitioners.