

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

Biosurfactant producing *Bacillus subtilis* PT2 was isolated from an oil sludge sample. In this research work, palm oil was used as a carbon source to produce biosurfactants. At an optimum oil loading of 2 % v/v, the nutrient broth gave the highest surface activity. The critical micelle concentration of the biosurfactant produced from *Bacillus subtilis* PT4 was 25 mg/L. The biosurfactant produced from *Bacillus subtilis* showed the highest oil recovery activity as compared to the biosurfactant produced from *Pseudomonas aeruginosa* and the three synthetic surfactants (Alfoterra, Tween 80 and SDBS).

5.2 Recommendations

In this work, bacteria stain PT4 was isolated from the oil sludge that is the rich-petroleum oil contaminated sources. So in next study, the others sources that contain the different hydrocarbon will be recommended to study such as the sludge from canned-fish factory. The different of sources and conditions have the high chance to discover the new stain of bacteria that have more surface activity than bacteria in this work.