CHAPTER V
CONCLUSION AND RECOMMENDATION

5.1 Conclusion

The degree of purification of biopolymer was 96.05 % with 1% of standard deviation by titration method and 96.80 % by FTIR method.

For the addition biopolymer solid, the highest possible wt% of biopolymer in polyHIPE was 23 wt%. At 23 wt% of biopolymer, phase separation was occurred. The structure of polyHIPE between before and after loading purified biopolymer showed a highly interconnected pore network structure. The decomposition temperature slightly increased from 439.31 °C (0 wt%) to 451.23 °C (23 wt%) but the surface area decreased from 303.00 m^2/g (0 wt%) to 87.30 m^2/g (23 wt%) when increased amount of biopolymer. When increasing amount of mixed-surfactant also increased amount of added biopolymer but there was the limitation of adding in each wt% of mixed surfactant and the phase separation occurred. Moreover, biopolymer was dissolved in acetic acid (solution form), the amount of biopolymer that can be added in the polyHIPE more than that of the addition biopolymer solid and the highest possible wt% of biopolymer solution was 150 wt%. The decomposition temperature slightly increased from 450.87 °C (30 wt%) to 455.24 °C (150 wt%) but surface area decreased from 303.00 m^2/g (0 wt%) to 46.74 m^2/g (30 wt%). However, surface area increased again from 46.74 m^2/g to 102.20 m^2/g (150 wt%).

5.2 Recommendations

5.2.1 To increase the surface area of polyHIPE, the type of porogen should be changed. The new porogen, such as Chloroethlybenzene (CEB), should have better solubility in organic phase than the solubility of toluene.

5.2.2 This method of polyHIPE preparation is strongly recommended in the field of CO_2 adsorption and further study is needed.