CHAPTER V
CONCLUSIONS AND RECOMENDATION

Pt/KL, which well prepared by CVD method under helium flow exhibited higher conversion, selectivity and stability but lower hexenes yield than the conventional IWI method. This difference can clearly observe at 500 ^{o}C which correlated with the FTIR results that demonstrated the agglomeration rate in IWI were rapidly increase due to the low resistance to high thermal treatment of IWI catalyst. Otherwise at low temperature i.e. 400 ^{o}C, although the catalysts have the low conversion but they still displayed the high selectivity to benzene. These results were concluded that CVD have the higher efficiency in the preparation of Pt/KL.

For ytterbium promoted catalyst prepared by CVD method, ytterbium attributed the increasing in the metal dispersion inside the channels of zeolite effected to the FTIR spectra of Pt carbonyl cluster band extended to the lower wave number. The highly disperse of platinum in L-zeolite from Yb leaded to the high performance of the PtYb/KL but only in the initial of reaction. This implies that the ytterbium may have the low ability to anchor in the zeolite pore walls and may aggregate and partial block the channels, in particularly at high temperature and in the presence of sulfur. Therefore PtYb/KL was remarkably observed the deactivation before Pt/KL. In contrast to at 400 ^{o}C, PtYb/KL exhibited lower conversion than Pt/KL in the free sulfur condition but in the presence of sulfur especially at high concentration (i.e., 2.5 ppm), PtYb/KL showed significantly increase in the conversion.

For the future work, the reaction should be further investigated in the longer reaction time for observation the deactivation of catalysts. Moreover, another type of rare earth elements should be studied to find the effective catalyst.