CHAPTER V
CONCLUSIONS AND RECOMMENDATIONS

Zeolites/cellulose acetate mixed matrix membranes (MMMs) and cellulose acetate membrane (CA) were prepared by the dissolution-casting-evaporation at room temperature.

In general, the permeabilities of ethylene, ethane, propylene, propane and nitrogen increased through NaX/cellulose acetate, AgX/cellulose acetate and silicalite/cellulose acetate MMMs in comparison to CA membrane. This was speculated that 1) there is more spaces or voids in the support layer and 2) the active skin layers of MMMs could be thinner than the CA membrane.

Most cases of MMMs were reverse selective for ethylene over ethane and propylene over propane in comparison to CA membrane. The mechanism of reverse selectivity was not clear. However, the possible reason of reverse selectivity may be due to zeolite effect in changing of the membrane morphology. Only 20% silicalite/CA membrane was selective for propylene over propane. It could enhance the selectivity in comparison to CA membrane.