CHAPTER V
CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

The photocatalytic activity of the ZnO/TiO_2 bilayer films was investigated in the degradation of AO7 molecules with and without UV-A illumination. For the effect of calcination temperature of ZnO, the result showed that the photocatalytic activity was increased when the calcination temperature of ZnO increased from 300 °C to 500 °C during UV-A illumination. In contrast, without the illumination, the 300 °C calcination temperature of ZnO resulting in the highest AO7 degradation about, 2.39% , and the maximum rate of 0.4×10^{-10} mol/l.s. Hence, the $300ZnO/TiO_2$ can store the oxidation energy for using in the degradation without irradiation. For the ZnO loading study, with the increase in the ZnO loading, the photocatalytic activity was increased and reached the maximum at 98 wt%. And from stability of the ZnO/TiO_2 film, the photocatalytic activity was gradually decreased with the increase in the operating time. The results also illustrated that the photocatalytic activity of the ZnO/TiO_2 films was superior to the TiO_2 film for all tested conditions. The V_2O_5/TiO_2 films did not show the photocatalytic activity even with UV-A illumination. It was postulated that the preparation technique may not be suitable for the V_2O_5/TiO_2 film preparation.

5.2 Recommendations

Based on what has been discovered in this study, the following recommendations are suggested:

1. Find other p-n catalysts that could enhance the degradation ability during the reaction without illumination.
2. Find suitable adhesion that can create the porous structure and improve the photocatalytic activity of the V_2O_5/TiO_2 bilayer film.