

## CHAPTER VI

### CONCLUSIONS AND RECOMMENDATION

#### 6.1 Conclusions

The conclusions of the present research are the following:

1. The crystal growth of the as-synthesized metal oxide increase from an increase of reaction temperature.
2. Different solvents (1,4-BG and toluene) does not affected on the crystal growth for titanium (IV) oxide and iron (III) oxide which is different from zinc (II) oxide.
3. With the same amount of silicon adding, for small crystal, the reduction of crystallite size is lower than the large one.
4. The thermal stability of metal oxide especially titanium (IV) oxide and zinc (II) oxide can be improved by doping silicon.
5. The thermal stability of a small crystallite size is better than the large crystal.

#### 6.2 Recommendation for future study

From the previous conclusions, the following recommendation for the future study are proposed.

1. To study the effect of the other second element on iron (III) oxide and zinc (II) oxide.
2. To study the effect of other solvent on the physical properties and thermal stability of metal oxide.
3. To study the effect of other solvent on the crystallite size of metal oxide.
4. To study the effect of silicon on the surface area of metal oxide.
5. To study the crystallization mechanism of titanium (IV) oxide, iron (III) oxide and zinc (II) oxide from solvothermal method.