# Chapter 8

## CONCLUSIONS

In conclusions, rifampicin and isoniazid were formulated as dry powder inhalers. Physical mixing of rifampicin and isoniazid with sugar carriers can be used to produce dry powder aerosols. The spray drying of isoniazid with sugar carriers were also formulated as dry powder aerosols. Rifampicin can be encapsulated by spraying into antisolvent technique and formulated as dry powders. The selected dry powder formulations in all techniques give suitable size and have physical characteristics for lung delivery of antituberculosis drugs after evaluation *in vitro*. These selected formulations of rifampicin and isoniazid have been shown to have physical and chemical stability for period of study. For the results of susceptibility testing by broth microdilution method against *M. tuberculosis*, the MICs of isoniazid formulations are 1.7 to 3.4 times lower than that of standard isoniazid. The MICs of rifampicin formulations are almost equally to standard rifampicin except rifampicin formulations produced by spraying into antisolvent because rifampicin in this formulation was degraded more than other formulations. The trehalose carrier in these formulations may be used to improve the efficacy of antituberculosis drugs. These formulations must be biocompatible and safe for human use therefore future study must determine toxicity and long term stability of the selected formulations. It has to ensure that the formulations can be targeted to an alveolar macrophage. Finally, the success in pre-clinical study of DPI will be further carried out in clinical studies in TB patients as compare with a conventional treatment.