CHAPTER 5

CONCLUSIONS

In this study, the formulation containing carrier size ranges of 30-71 μm provided greatest %FPF. When considering device resistance, we found that selected tobacco pipes provided higher device resistance than the Inhalator. In this study we can conclude that, factors affecting efficiency of devices are flow-rate, formulations and device design. Generally, %FPF increases when increasing the operation flow rate however %FPF is related with only low and medium resistance device in all formulations. Medium device resistance device like Cyclohaler can provide greatest of %FPF. High device resistance devices can generate smaller MMAD by producing high particle-air impaction. However, higher device resistance device may cause uncomfortable while patient's operating and the high velocity of air steam out from mouthpiece may cause drug loss through inertial impaction effect. The improvement of %FPF is not dependent only on device resistance but also the device design. The present work has indicated that the assessment of the aerodynamic performance of DPIs is not straight-forward. For drug delivery performance the inlet turbulence levels had a much smaller effect on oral cavity deposition than inlet diameter and mean velocity, this assumption is reasonable. The another method had been advised to produce much of turbulence air steam while not increase device resistance is to create holes on side of the device like designed in Diskhaler may solve the more of jet steam velocity problems that Voss and Finlay (2002) had found. However, from empirical data and results in this study, the outlet of the mouthpiece should not be less than 10 mm to provide air entrainment from devices that cause the drug loss through inertial impaction. To improve drug

delivery performance, appropriate outlet mouthpiece diameter of device should be optimized in the device design.