CHAPTER V
CONCLUSIONS

The present study was to develop electrostatic fluidized bed coating technique for pharmaceutical pellets. The effects of three variables, types of drug core pellets, film formers and applied electrical potentials on the characteristic of coated pellets were studied. Propranolol hydrochloride and diclofenac sodium core pellets were prepared by extrusion-spheronization technique. Hydroxypropylmethylcellulose (HPMC) solution and ethylcellulose aqueous dispersion (Aquacoat ECD®) were used as coating agents. Applied electrical potential of 4 kV was either positive or negative charge as well as changed between the positive and negative charges at designated intervals. The properties of coated pellets were compared with those from the process of non-applied electrical potential. It can be concluded from the study that:

In general, the coated pellets from all coating conditions showed excellent flowability and uniformity in size and shape.

The film thickness, crushing force and drug release profiles of the coated pellets was primarily affected by type of drugs core pellets, film formers and applied electrical potentials.

The coating efficiency of the electrostatic coating technique was more reproducibility than that of the conventional technique.

The properties, i.e. bulk density, tapped density and sphericity, of coated pellets produced by applying electrical potential to the nozzle did not show marked difference from those proceeded with the process of non-applied voltage for any drug core pellets or film formers.

The electrostatic coating technique is the new aspect in pharmaceutical industry, whereby there has been few study identifying the effect of process variables. In this study, it was difficult to evaluate and bring about the absolute conclusion due

to complexity of variables studied. Although the electrostatic coating technique may be a potential method for coating pharmaceuticals as shown in good reproducibility of coating efficiency, the studied variables should be carefully selected in further development.

The future studies for electrostatic coating technique for coating pharmaceuticals could be as follows:

1. Use of alternative techniques to measure and monitor charge generation on the surface of fluidized core particles and coating droplets sprayed from the nozzle such as on-line measurement technique may be necessary.
2. It is necessary to investigate the effect of humidity of the fluidizing air before entering the coater chamber due to that it may affect on charging mechanism.
3. Assessment of the effect of additives in the coating compositions which may be interfered with the effect of the applied electrical potential of the nozzle is important.
4. Investigation of the effect of magnitude of electrical potential applied to the nozzle on the coating efficiency should be carried out.