

## Preparation and Characterization of Chlorpheniramine Maleate-Solution-Dropping Tablet

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### ABSTRACT

*This study is an attempt to design a novel method, drug-solution-dropping, in preparing tablets expected to release the drug faster than from conventional method. Chlorpheniramine maleate (CPM) was used as a model drug. Firstly, we prepared tablets containing no drug (blank tablets) by direct compression (DC) with dicalcium phosphate dihydrate, croscarmellose sodium and magnesium stearate as filler, super disintegrant and lubricant, respectively. Another kind of blank tablet was prepared by wet granulation (WG), using lactose as diluent. Absolute alcohol and dichloromethane were used to prepare CPM solution in a concentration of 100 micrograms per microliter. The prepared solution of 40 microliters (4 mg CPM) was dropped on each blank tablet by using microsyringe. A scanning electron microscope (SEM) was used to characterize both blank and CPM-solution-dropping tablet. Their morphology showed that the particle size of the dropped CPM in the tablet was reduced. X-ray monochromator (single crystal) analysis and differential scanning calorimetry (DSC) were used to examine the crystalline of CPM after dropping onto both kinds of blank tablets. Both techniques could not characterize powder or granule which was taken from the drug-solution-dropping tablet whether it was the drug particle or the excipients. Dissolution profiles of the CPM-solution-dropping tablet from DC and WG blank tablets were compared to CPM tablets prepared by conventional DC and WG method and also to commercial tablets. The results of the dissolution tests revealed that the drug-solution-dropping tablet could be considered a novel form to promote a faster drug release rate especially the drug-solution-dropping prepared from DC blank tablet with 1000 kg of compression force and WG blank tablet with 1800 kg of compression force. Having more uniformity of content is also an advantage of the drug-solution-dropping tablet prepared.*

**Key words:** Chlorpheniramine maleate, Solution-dropping tablet