

CHAPTER II

The Purpose of Investigation

Since the β -CD could form inclusion complex with various drugs which have the suitable size to fit in its cavity, we were interested in its properties. More specifically, would a complex form as we were interested in the preventing properties of it from the thermal degradation, the aqueous degradation and other pathways of degradation. Because of the ease of degradation of chloramphenicol in eye-drop preparation, we decided to use the inclusion complex to improve its chemical stability. The study was divided into three steps. The Phase Solubility diagram was performed to find the stoichiometric ratio and the formation constant (K_c), then confirm the forming of the complex by IR spectroscopy, X-ray diffraction, and differential thermal analysis (DTA) method.

Then, the thermodegradation process of chloramphenicol and chloramphenicol: β -CD complex were performed at 70°, 60°, 50°, 40°C, and at room temperature for the Arrhenius plot. The shelf-life will be employed for comparing the shelf-life of the complex with the shelf-life of chloramphenicol. Finally, the microbiological activity test of the complex against chloramphenicol was studied using C.F.R. method (Agar Diffusion Method).