CHAPTER V

CONCLUSION

In this study, 10% w/v PVP-I in buffer solutions have been prepared to develop the formular. The degradation rates, degradation profiles and pH change were approached to investigated the effects of many pharmaceutical buffers (such as phosphate, acetate and citrate), solvents (distilled water, deionized water, and potable water), and packaging materials (LDPE, HDPE, clear glass, amber glass and PP). The value of appearance degradation rate was used as an indicator for the comparison of PVP-I stability. It was surprising that the degradation of PVP-I was found to decrease rapidly in the initial period and then it was postulated to be a zero order reaction in the later period. By means of preformulation studies, it was observed that among the three selected buffers, phosphate buffer had the most stabilizing effect, while citrate buffer had the best pH maintenance effect. Therefore, many mixtures of phosphate and citrate was then prepared to search for the suitable ratio. Ultimately, the selected formular was F-11 , containing 0.025 M phosphate and 0.05 M citrate.

It was found from the proceeding study of solvents and packaging materials that using single distilled water as solvent, and filling in LDPE container gave the satisfactory result in better stability.

In case of formulation in commercial manufacturing, the result according to experimental condition informed that excess PVP-I should be added to preserve amount of available iodine after rapid degradation period not lower than that is official in pharmacopoeia. It would be necessary for the water system in pharmaceutical manufacturer to have added corrective facilities e.g. deionization, distillation process for acceptable quality water.

It is hoped that this study would be useful and provide pharmacists the applications of PVP-I formulation development in pharmaceutical manufacturing so on.