Chapter IV

Conclusion

The phosphorus nuclear magnetic resonance technique could be used to determine the amount of Codeine phosphate in preparation by detecting in the phosphate form. The effect of concentration was examined. suitable concentration for making standard curve is 5 mg/ml to 15 mg/ml. For studying the Codeine phosphate injection, the effect of pH on the NMR peak was examined. It was shown that the suitable pH range for determining codeine phosphate by 31P -NMR technique was 3.55 to 6.60. The percent label amount of Codeine phosphate in injection which obtained from 31P -NMR technique was reliable when compared to the official method of U.S.P. For studying the codeine phosphate syrup, the effect of viscosity on the NMR peak was examined. The suitable viscosity range that had no effect on determining the codeine phosphate by 31P -NMR technique was 24 to 65 centipoises. The results of assay of codeine phosphate syrup using 31P -NMR and HPLC were reliable percentage compared to label amount. But the Actifed compound linctus was composed of phosphate buffer, so the amount of codeine phosphate obtained by 31P -NMR technique was much more than label amount. For the routine assay, the phosphate buffer should be determined in order to used as a correction of the amount of codeine phosphate in linctus.

The phosphorus -31 nuclear magnetic resonance technique can be applied to assay any drug that contains phosphate group. It was shown that other groups or excipients did not interfere in this method except phosphate group. The results obtained were comparable to those obtained from U.S.P. method with high accuracy and good reproducibility. Even though the cost of NMR spectrometer is high but it will save time and expenses for routine work.

