

CHAPTER IV

SUMMARY



Solid Phase Extraction was a rapid and efficient sample preparation technique. In addition to the convenient sample purification, the SPE decreases solvent consumption and exposure of personnel. The use of Amberlite XAD-2 resin column permitted essentially complete recovery of drugs in a small volume of eluate. The low cost, wide useful pH range and relatively strong adsorbent properties of Amberlite XAD-2, suggested that it was suitable as a precolumn packing because of its inertness at all pH. The buffer pH value of 11.0 was chosen in the study because a variety of basic amine drugs, including ephedrine hydrochloride, codeine phosphate and promethazine hydrochloride were presented primarily as unionized forms at this pH, therefore exhibited strong retention on the XAD-2 resin.

The HPLC method for the simultaneous quantitative determination of ephedrine hydrochloride, codeine phosphate and promethazine hydrochloride in syrup formulation was developed. Ethylephedrine hydrochloride was used as an internal standard. The advantages of the method included excellent resolution of the four substances obtained without using gradient elution and the capability of the quantitation of promethazine hydrochloride in the presence of degradation products.

The pH of the mobile phase was found to be the most critical parameter on acceptable resolution of the major components of interest. The pH should be controlled between $7.05 \pm .05$

In this investigation, the HPLC method with a simple solid phase extraction was developed for simultaneous analysis of ephedrine hydrochloride, codeine phosphate and promethazine hydrochloride in syrup formulation. The method was amenable to the analysis of a large number of samples with precision and accuracy.