CHAPTER 8
Summary
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Quality assurance and control of pharmaceutical, chemical and formulations is essential for ensuring the availability of safe and effective drug formulations to consumers. Hence Pharmaceutical analysis occupies a vital role to statutory certificate of drugs and their formulations either by the industry or by the regulatory authorities. The complexity of problems encountered in pharmaceutical analysis coupling with the importance of achieving the selectivity, speed, cost, simplicity, sensitivity, precision and accuracy results in new methods of analysis being quickly adopted by pharmaceutical industries and chemical laboratories depending upon the facilities available. Formulations contain combinations of drugs for potentiating or complementing one another in therapy or on the increase. In some case, no precise analytical methods are reported and quite often the reported procedures need improvements or change keeping in view of the advances.

Among the several instrumental techniques (HPLC, GC, Fluorimetry, NMR, IR, UV and Visible regions) available for the assay of drugs. Usually spectrophotometric technique is simple and less expensive. The selectivity and sensitivity of the spectrophotometric methods depends only on the nature of chemical reactions involved in colour development and not on the sophistications of the experiment.
UV and Visible spectrophotometric methods are highly versatile, sensitive and reproducible. In an attempt made to develop the new spectrophotometric methods for estimating the selected drugs from pharmaceutical preparations.

The contents of the thesis have been divided in seven chapters and appropriate references have been placed at the end of the last chapter. Chapter 1 opens with introduction to drugs, historical evaluation of drugs, sources of drugs, the important terms used in chemistry of drugs, Biological and medical terms used in the study of drugs, Dosage forms and assay of drugs:

Chapter-2 describes the survey of literature of the selected drugs

Chapter-3 of the thesis is divided into three sections. Section (a) gives objectives of the present investigation Section (b) describes the preparation of various drug solution and reagents. Section (c) gives the description of the instrument used in the present study. (d) Brief profile of the selected drugs.

Chapter-4 of the thesis contains a novel difference spectrophotometric method for the estimation of selected drugs such as 1. stilboestrol 2. Rebaprazole 3. Desloradidine 4. Domapridine

In this method the drug containing phenolic group in alkaline medium gives bathochromic shift in U.V region. The drug solution in basic medium is
scanned over the UV region by taking the acidic drug solution as blank. From the absorbance values, spectrum is constructed. Two wavelengths are selected one at positive peak and another at negative. The sum of the absolute values at these wavelengths is called amplitude. The amplitude is proportional to the amount of drug. The calibration curve was plotted with the amplitude values verses amount of drug.

This method is found to be simple and sensitive for the estimation of selected drugs by spectrophotometrically.


Phenolic hydroxy group and aromatic amino group containing drug is react with 2,3-dichloro-5,6-dicyano-1,4-benzquinone (DDQ) in chloroform to form a charge transfer complex investigated by spectrophotometric method. The method is simple and it can be adopted for the routine pharmaceutical analysis.

Chapter-6 of the thesis deals with spectrophotometric method for the estimation of selected drugs. The method based on a charge transfer complexation reaction of heterocyclic ring containing drugs. In this method, the oxidation of the drug by a known excess amount of ceric(IV) sulphate in acid medium, the unreacted ceric(IV) sulphate is titrated with ammonium
ferrous sulphate. Iron(II) by the excess cerro(IV). After 5 minutes the resultant ironIII sulphate solution is treated with 1m ammonium thicyanate, immediately it forms blood red colour of iron III sulphate—thicyanate complex. This developed colour stable for more than 30 minutes.

Sections Chapter-7 of the thesis commences with the bromination method. The following drugs are estimated by the bromination method spectrophotometrically. The selected drugs are 1. Methyl dopa 2. Stilboestrol 3. Cefedroxil and 4. Desloratadine.

The drug having an aromatic amino group or phenolic group with at least one ortho or para position vacant, undergoes bromination when treated with a solution of bromate-bromide mixture under strong acidic medium. This reaction is instantaneous and quantitative. Hence this reaction is chosen to develop a novel spectrophotometric method for the estimation of drugs having a phenol or aromatic amino group.

The drug is treated with known excess of brominating mixture-(bromate bromide mixture) in strong acidic medium to have bromination of the drug. The excess brominating mixture is treated with methylene blue. The methylene blue underwent bromination to give gross green colored. The absorbance of colored species is measured at 670 nm, wavelength under standard condition and assaying of the drug is made through the calibration curve. This method is
less time consuming, simple and sensitive. The colour development is instantaneous.

Chapter-8 of the thesis describes the summary of the present investigations. Thus, it is concluded that the proposed method is having greater advantage over the several analytical methods like titrimetric method, classical analytical methods and the several instrumental methods such as conductometric, potentiometric and even spectrophotometric methods.

In conclusion, the author strongly is of the opinion that the proposed methods by spectrophotometry or difference spectrophotometry offer definite advantages and novelty over already reported methods.