Chapter VIII

Summary & References
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 drug and Principles of spectrophotometry :

Chapter-2 describes the survey of literature of the selected drugs and objectives of the present investigation.
Chapter-3 of the thesis is divided into three sections. Section (a) describes the preparation of various drug solution and reagents. Section (b) gives the description of the instrument used in the present study. (c) Brief profile of the selected drugs.


The method based on the formation of chloroform extractable complex of drug with various dyes at suitable pH. The absorbance of the extracted complex is measured and assaying of the drug is made through the calibration curve.

The method is simple and is adopted for the routine pharmaceutical analysis.

Chapter-5 of the thesis contains a novel difference spectrophotometric method for the estimation of selected drugs such as 1. Chloroquine 2. Amiloride 3. Aciclovir.

In this method the drug containing amino group in acidic medium gives bathochromic shift in U.V region. The drug solution in acidic medium is scanned over the UV region by taking the basic solution as blank. From the absorbance values, spectrum is constructed. Two wave lengths 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.

Chapter-6 of the thesis deals with Cerimetric 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 cerrio(IV). After 5 minutes the resultant iron (III) 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. The following selected drugs are estimated by this method. 1. Amiloride 2. Clomipramine 3. Aciclovir

Chapter-7 deals with a simple charge transfer complex method for the estimation of 1. Clomipramine 2. Levobunolol 3. Metoprolol by spectrophotometric method. The method is based on the reaction of drug with 2, 3-dichloro-5, 6-dicyano-1, 4-benzquinone (DDQ) to form colour charge-transfer complex. The colour solution is used to determine the selected drugs spectrophotometrically.

The method is simple precise, reproducible and it can be adopted for the routine analysis of drugs in pharmaceutical formulations.

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.
References


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