CHAPTER-7
SUMMARY
Drug may be a substance used in the prevention, diagnosis, treatment or cure of disease in man or animals. A single drug of a particular composition is marketed in various brand names by different manufacturers. The possibility of minor changes in the chemical composition and quality of the drug will have a profound effect on the physiological and biological activities of the patient. The spurious and substandard drugs released in the market in different trade names definitely will have an adverse effect on the human beings at large.

Quality control is a concept, which strives to produce a perfect product by series of measures designed to prevent and eliminate errors at different stages of production. As a matter of fact, it is built in from the time of inception of the thought to make a product, to the time it is finally made and sent out with the quality report. Quality assurance and control of pharmaceutical formulations is essential for ensuring the availability of safe and effective drug formulations to consumers. The quality of medicines or pharmaceutical products is assured through quality control. It is, therefore, essential that quality assurance department must adopt “Good Laboratory Practice” to ensure reliability of pharmaceuticals together with their careful control and are our moral obligations arising from the humanism towards the sick human beings. Consequently, the manufacturers and the controller of
drugs are very responsible and they need substantial knowledge of the
science. To achieve the selectivity, speed, cost effectiveness, simplicity,
sensitivity, precision and accuracy of the results in new methods of analysis
are being quickly adopted by pharmaceutical industries and chemical
laboratories depending upon the facilities available with them.

It is with this challenge in mind; the author has taken up thorough
investigations to evaluate the purity of the various selected drugs released
into the market.

Various instrumental techniques (HPLC, GC, Fluorimetry, NMR, IR,
UV and Visible regions) are 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. An attempt is made to develop 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- Drugs importance and Assay, 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, the role of Analytical chemistry in Pharmacy and assay of drugs:

Chapter-2 deals with 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 (i) describes the preparation of solutions of various drugs and reagents employed. Section (ii) gives the description of the instrument used in the present study. Section (iii) highlights the profile of the selected drugs.

Chapter-4 of the thesis begins with the principle of diazotisation of drugs containing aromatic amino group and subsequent spectrophotometric methods for the estimation of 1.sulamoxole 2.cisapride 3.mosapride and 4. metoclopramide.

The procedure adopted for the assay of the above drugs is mentioned below. The drug is treated with sodium nitrite in acidic medium for diazotization. After completion of diazotization, the diazotized drug is coupled with a coupling reagent, p-hydroxyacetanilide, in basic medium to produce wine red colour. The Absorbance of each drug is measured at its wavelength of maximum absorbance against the reagent blank.
This is a new method, found to be simple and sensitive. The colour development is instantaneous and stable for several hours.

Chapter-5 of the thesis describes a simple condensation method for the estimation of 1. daposne 2. sulfamoxole 3. cisapride 4. mosapride by spectrophotometric method.

The method is based on the condensation of amino group containing drugs with vanillin under acidic conditions to produce yellow coloured schiff's base. The absorbance of the coloured species is measured at the wavelength of maximum absorbance of each drug against the corresponding reagent blank, and the amount of the drug is made through the calibration curve.

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

Chapter-6 of the thesis deals with newly developed absorbance difference method for simultaneous estimation of selected binary drugs. Binary mixture of 1. norfloxacin and ornidazole 2. nalidixic acid and metronidazole 3. ofloxacin and ornidazole and 4. doxycycline and tinidazole are determined by this method.

The absorbance difference method is applied for the estimation of one drug in presence of another drug. In this method different concentrations of
first drug solution are scanned over the range of wavelengths and the spectrum of each concentration of first drug solution is constructed. Similarly different concentrations of second drug solutions are also scanned over the range of same wavelength range for each concentration of second drug solution. Two wavelengths are selected for first drug, in such way that at these wavelengths the absorbance difference is almost zero, while the second drug has considerable absorbance difference at these wavelengths. The absorbance difference values of several solutions of second drug of different concentration at these wavelengths are tabulated. A calibration curve for the estimation of second drug is made between the absorbance difference values and the concentration of the second drug.

Similarly two wavelengths are selected for second drug, at which the absorbance difference is almost zero, while the first drug has considerable absorbance difference at these wavelengths. The absorbance difference values of first drug solution at different concentrations at these wavelengths are tabulated. A calibration curve for the estimation of first drug is drawn between the absorbance difference values against the concentration of the first drug. By this the concentration of two drugs can be estimated.
This absorbance difference method is very simple and has been successfully employed for the estimation of above mentioned binary drug formulations.

Chapter-7 of the thesis describes the summary of the present investigations.

The present investigations on the assay of the selected drugs have yielded simple, sensitive, rapid spectrophotometric procedures, which are easily applied for their assay in pharmaceutical formulations.