The present Work comprises three chapters in the thesis:

Chapter (1)

Contains the introduction which includes two parts: the first parts gives an idea about the drugs under consideration, a discussion about the definitions, actions, chemical structures and chemical names, characters of the studied drugs Fexofenadine hydrochloride, Fluoxetine hydrochloride and Azithromycine. The second part gives a literature survey of the previous studies for the analysis of the studied drugs including spectrophotometric, ultra-violet spectrophotometric, capillary electrophoresis, high-performance liquid chromatography, electro analytical and chromatographic methods. Also the chemical structures, chemical names and a literature survey of the acid dyes Bromophenol blue (BPB), bromocresol green (BCG), BromoThymol blue (BTB) and bromocresol purple (BCP) are given.

Chapter(2)

Contains the experimental part which includes the apparatus used for measurement, procedures for preparation of the drug solutions, reagents and official methods for the determination of the studied drugs in pure forms or in the pharmaceutical forms which are analyzed. It also contains the proposed spectrophotometric methods for determination of the drugs under considerations in pure forms and in dosage forms.

Chapter (3)

Contains the results and discussion which include the spectrophotometric procedures for the determination of the studied drug dye using acid dyes BromoPhenol blue(BPB), bromocrsol green (BCG), bromocresol purple (BCP) and BromoThymol blue (BTB). The proposed methods based on determination of coloured ion-pair complex formation between the acid dyes and drugs which is extracted with organic solvents and the determination of the concentration of it by the measuring the absorbance of the extracted complex against a blank prepared by the same way except addition of the drug. The following experimental variables were investigated.

1- effect of pH.
2- Effect of time.
3- Effect of the extracting solvent.
4- Effect of reagent concentration.
5- Molecular ratio of the complex.
6- Suggested mechanism.
7- Interference.
8- Evolution of the stability constants of the ion-pair complexes.

1- Using BPB

Beer's law is obeyed within the consideration ranges 1.0-6.0 µg/ml, 1.0-7.0 µg/ml and 1.0-6.0 µg/ml for Fexo, Fluox and Azithr, respectively in case of (BPB). For more accurate results, ringbom optimum concentration ranges are determined. Molar Absorptivity, Sandell sensitivity, detection and quantification limits are calculated. The stoichiometeric ratios of the studied drugs with BPB are

established using the mole ratio and continuous variation methods and found to be 1:1 for all the drugs under consideration with BPB. In order to determined the accuracy and precision of the proposed methods, solutions containing three different concentrations of the studied drugs are prepared and analyzed in six replicates. The recovery, relative standard deviation, relative error and confidence limits are calculated. The proposed methods can successfully be applied to determine the pure form of the studied drugs and their dosage forms. The results obtained are compared statistically by student's t-value and variance ratio F-test with the official methods at 95% confidence level. The results show that the t- and F-values are less than the critical value indicating that there is no significant difference between the proposed and official methods. Thus, the proposed spectrophotometric methods can applied for determination of the studied drugs in pure forms and in dosage forms.

2- Using BCG

Beer's law is obeyed within the concentration ranges 1.0-8.0 µg/ml, 0.5-7.0 µg/ml and 2.0-11.0 µg/ml for Fexo, Fluox and Azithr, respectively in case of (BCG). For more accurate results, ringbom optimum concentration ranges are determined. Molar Absorptivity, sandell sensitivity, detection and quantification limits are calculated. The stoichiometeric ratios of the studied drugs with BCG are established using the mole ratio and continuous variation methods and found to be 1:1 for all the drugs under consideration with BCG. In order to determined the accuracy and precision of the proposed methods, solutions containing three different consideration of the studied drugs are prepared and analyzed in six replicates. The recovery, relative standard deviation, relative error and confidence

limits are calculated. The proposed methods can successfully be applied to determine the pure form of the studied drugs and their dosage forms. The results obtained are compared statistically by student's t-value and variance ratio F-test with the official methods at 95% confidence level. The results show that the t- and F-values are less than the critical value indicating that there is no significant difference between the proposed and official methods. Thus, the proposed spectrophotometric methods can applied for determination of the studied drugs in pure forms and in dosage forms.

3- Using BTB

Beer's law is obeyed within the concentration ranges 0.5-9.0 µg/ml, 0.7-6.0 µg/ml and 0.2-7.5 µg/ml for Fexo, Fluox and Azithr, respectively in case of (BTB). For more accurate results, ringbom optimum concentration ranges are determined. Molar Absorptivity, sandell sensitivity, detection and quantification limits are calculated. The stoichiometeric ratios of the studied drugs with BTB are established using the mole ratio and continuous variation methods and found to be 1:1 for all the drugs under consideration with BTB. In order to determined the accuracy and precision of the proposed methods, solutions containing three different concentrations of the studied drugs are prepared and analyzed in six replicates. The recovery, relative standard deviation, relative error and confidence limits are calculated. The proposed methods can successfully be applied to determine the pure form of the studied drugs and their dosage forms. The results obtained are compared statistically by student's t-value and variance ratio F-test with the official methods at 95% confidence level. The results show that the t- and F-values are less than the critical value indicating that there is no significant

difference between the proposed and official methods. Thus, the proposed spectrophotometric methods can applied for determination of the studied drugs in pure forms and in dosage forms.

4-Using BCP

Beer's law is obeyed within the concentration ranges 0.5-6.0 µg/ml, 0.5-8.0 µg/ml and 0.4-11.0 µg/ml for Fexo, Fluox and Azithr, respectively in case of (BCP). For more accurate results, Ringbom optimum concentration ranges are determined. Molar Absorptivity, sandell sensitivity, detection and quantification limits are calculated. The stoichiometeric ratios of the studied drugs with BCP are established using the mole ratio and continuous variation methods and found to be 1:1 for all the drugs under consideration with BCP. In order to determined the accuracy and precision of the proposed methods, solutions containing three different concentrations of the studied drugs are prepared and analyzed in six replicates. The recovery, relative standard deviation, relative error and confidence limits are calculated. The proposed methods can successfully be applied to determine the pure form of the studied drugs and their dosage forms. The results obtained are compared statistically by student's t-value and variance ratio F-test with the official methods at 95% confidence level. The results show that the t- and F-values are less than the critical value indicating that there is no significant difference between the proposed and official methods. Thus, the proposed spectrophotometric methods can applied for determination of the studied drugs in pure forms and in dosage forms.