SUMMARY

Chapter I

Contains the introduction which include two parts: the first part gives an idea about histamine and histamine antagonists, and concentrate on H_2-receptor antagonists. A detailed discussion about the difinitions, action and idications, metabolism and pharmacokinetics, chemical structures and chemical names, characters of the studied drugs ciemtidine, ranitidine and famotidine are given. The second part gives a literature survey of the previous studies for the analysis of the studied drugs including spectrophotometric, spectrofluorimetric, ultra-violet spectrophotometric, titrimetric, physicochemical, electroanalytical and chromatographic methods.

Chapter II

Contains the experimental part which includes apparatus used for measurement and procedures for the preparation of the solution of drugs and reagents. It also contains the proposed spectrophotometric methods for determination of the studied drugs in pure form, in dosage forms and in the presence of their oxidative degradates. Also, it contains pharma-copoeial and official methods for analysis of the studied durgs.

Chapter III

Contains the results and discussion which include two parts

the first part includes specrophotometric procedures for determination of the studied drugs using N-bromosuccinimide (NBS). The proposed methods are based on oxidaiton of the studied drugs by

NBS and determination of the unreacted NBS by measuring the decrease in absorbance of amaranth dye. The following experimantal variables are investigated.

1- Effect of acid concentration.
2- Effect of time and temperature.
3- Effect of sequence of additions
4- Effect of KBr concentration.
5- Effect of dye concentration.

Beer's law is obeyed in the concentration ranges 0.4–4.4, 0.2–3.6 and 0.1–2.4 μg ml^{-1} for Cim, Ran and Fam, respectively. For more accurate results, Ringbom optimum concentration ranges are determined. The apparent molar absorptivity, Sandell sensitivity, detection and quantitation limits are calculated. The stoichiometric ratios of the studied drugs with NBS are established using the molar ratio method and found to be 1:1, 1:6 and 1:10 for Cim, Ran and Fam to NBS, respectively. In order to determine the accuracy and precision of the proposed methods, solutions containing three different concentrations of the studied drugs are prepared and analysed in six replicates. The recovery, the relaltive standard deviation, the relative error and the confidence limits are calculated. The proposed methods can successfully determine the pure form of the studied drugs in presence of different concentrations of their oxidative degradates. Also, the proposed methods are successfully applied to determine the studied drugs in their dosage forms. The results obtained are compared statistically by Student's t-test (for accuracy) and variance ratio F-test (for precision) with the official methods at 95% confidence level. The results showed that the t-and F- values are less than the critical values indicating that there is no significant difference

between the proposed and official methods. Thus the proposed spectrophotometric methods can applied in determination of the studied drugs in pure form, in dosage forms and in the presence of their oxidative degradates.

The second part includes, spectrophotometric procedures for determination of the studied drugs using cerric sulphate $Ce(SO_4)_2$. The proposed methods are based on oxidation of the studied drugs by $Ce(SO_4)_2$ and determination of the unreacted Ce(IV) by measuring the decrease in absorbance of chromotrope 2R or rhodamine 6G dye. The following experimental variables are investigated.

1- Effect of acid concentration.
2- Effect of temperature.
3- Effect of time.
4- Effect of sequence of additions.
5- Effect of dye concentration.

Beer's law is obeyed in the concentration ranges 0.2-3.4, 0.1-2.8 and 0.1-2.2 μg ml^{-1} for Cim, Ran and Fam, respectively using C2R. In case of using Rh6G the concentration ranges are 0.2-3.4, 0.1-2.6 and 0.1-2.2 μg ml^{-1} for Cim, Ran and Fam, respectively. For more accurate results, Ringbom optimum concentration ranges are determined. The apparent molar absorptivity, Sandell sensitivity, detection and quantitation limits are calculated. The stoichiometric ratios of the studied drugs with $Ce(SO_4)_2$ are established using the molar ratio method and found to be 1:3 , 1:25 and 1:34 for Cim, Ran and Fam to $Ce(SO_4)_2$, respectively. In order to determine the accuracy and precision of the proposed methods, solutions containing three different concentrations of the studied drugs are prepared and analysed in six replicates. The

recovery, the relative standard deviation, the relative error and the confidence limits are calculated. The proposed methods can successfully determine the pure form of the studied drugs in presence of different concentrations of their oxidative degradates. Also, the preposoed methods are successfully applied to determine the studied drugs in their dosage forms. The results obtained are compared statistically by Student's t-test (for accuracy) and variance ratio F-test (for precision) with the official methods at 95% confidence level. The results showed that the t- and F-values are less than the critical values indicating that there is no significant difference between the proposed and official methods. Thus the proposed spectrophotometric methods can applied in determination of the studied drugs in pure form, in dosage forms and in the presence of their oxidative degradates.