سامية محمد مصطفى

شبكة المعلومات الجامعية

بسم الله الرحمن الرحيم

سامية محمد مصطفى

شبكة المعلومات الجامعية

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التوثيق الالكتروني والميكروفيلم

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سامية محمد مصطفى

جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

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بالرسالة صفحات لم ترد بالأصل

PHYSICO-CHEMICAL STUDIES ON SOME ANTIBACTERIAL DRUGS

A thesis presented

By

Safaa Mohamed Abdel-Hamid

For
Ph. D. Degree in Science
(Analytical Chemistry)

To

Chemistry Department
Faculty of Science
Cairo University

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APPROVAL SHEET FOR SUBMISSION

Title of Ph. D. Thesis: Physico-Chemical Studies on Some Antibacterial Drugs.

Name of Candidat: Safaa Mohamed Abdel – Hamid

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This thesis has been approved for submission by the supervisors.

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ABSTRACT

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Title of thesis : Physico-chemical studies on some drugs.

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This work has been carried out to investigate the spectrophotometric studies on the determination of ketoconazole (KC), trimetazidine hydrochloride (TMH) and piribedil (PD) through complexation with iron (III) chloride and tetraiodobismuthate (III). The stability constants of these complexes are obtained by spectrophotometric or potentiometric methods.

Besides, two spectrophotometric methods are described for the assay of KC, TMH and PD based on ion-pair and charge-transfer (CT) complexation reactions. The first method is based upon the interaction of the basic drug in dry 1,2-dichloroethane with bromocresol green (BCG) in the same solvent to produce a stable yellow ion-pair associate. The second method is based on the reaction of the basic drug as a n-donor with iodine as σ-acceptor or with 2,3-dichloro-5,6-dicyano-p-benzoquinone (DDQ), 7,7,8,8-tetracyanoquinodimethane (TCNQ) and p-chloranil (CL) as π-acceptors to give highly coloured CT complex species. A more detailed investigation of the complex was made with respect to its composition, association constant and free energy change.

The methods were simple sensitive and accurate within ± 1.5%. Application of the suggested methods to drug tablets and creams is presented and compared with the reference methods.

Key words: Ketoconazole, trimetazidine hydrochloride, piribedil, iron (III) chloride, tetraiodobismuthate (III), iodine, BCG, TCNQ, DDQ and CL, spectrophotometry, potentiometry, conductometry, atomic-absorption spectroscopy, complexation reactions, ion-pair formations and charge-transfer complexes.

PUBLICATION

Part of the original work in this thesis has been published in the following paper:

1. Utility of Some π-Acceptors for the Spectrophotometric Determination of Trimetazidine Hydrochloride, Analytical Letters, 2002, 35 (3), 451-461.

2. Spectrophotometric Determination of Some Pharmaceutical Piperazine Derivative by Charge-Transfer and Ion-Pair Complexation Reactions, Scientia Pharmaceutica, 2002, 70, 253.

CONTENTS

CHAPTER III