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شبكة المعلومات الجامعية



شبكة المعلومات الجامعية التوثيق الالكتروني والميكروفيلم



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PHYSICO-CHEMICAL STUDIES ON SOME ANTIBACTERIAL DRUGS

A thesis presented

By

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ABSTRACT

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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 σ -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 $\pm 1.5\%$. 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.

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