بسم الله الرحمن الرحيم

"يرفع الله الذين ءامنوا منكم والذين أوتوا العلم

درجات والله بما تعملون خبير"

صدق الله العظيم

"EQUILIBRIUM AND KINETIC INVESTIGATION OF METAL COMPLEXES OF EXPECTED ANTITUMOUR ACTIVITY"

A Thesis Submitted

For the M. Sc. Degree (Chemistry)
(In Partial fulfillment)

To

The Department of Chemistry
Faculty of Science
Cairo University

By

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APPROVAL SHEET FOR SUBMISSION

Title of the M. Sc. Thesis:

"Equilibrium and Kinetic Investigation of Metal Complexes of Expected Antitumour Activity".

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ABSTRACT

Name: Safaa Said Mahmoud Hassan.

Title of thesis: *"Equilibrium and Kinetic Investigation of Metal Complexes of Expected Antitumour Activity."*

[Pd(DME)Cl_2] complex, was synthesized and characterized. Stoichiometry and stability constants of the complexes formed between various biologically relevant ligands (amino acids, peptides, DNA constituents and dicarboxylic acids) and $[Pd(DME)(H_2O)_2]^{2+}$ are investigated at 25ºC and at constant 0.1 M ionic strength. The effect of solvent (dioxane) on the stability constant of Pd(DME)-CBDCA is also reported. The concentration distribution diagrams of the various species formed are evaluated. The kinetics of base hydrolysis of free and coordinated amino acid esters are investigated. The effect of the temperature on the kinetics of base hydrolysis of the glycine methyl ester in presence of $[Pd(DME)(H_2O)_2]^{2+}$ complex is studied. The activation parameter ($\Delta H^{\neq}$) of the coordinated glycine methyl ester is also determined.

Keywords: Complex-formation equilibria, 2-{[2-(Dimethylamino)ethyl]-methylamino}ethanol, Pd(II), amino acid, peptides, DNA units, dibasic acids and amino acid ester hydrolysis.

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DEDICATED

TO

MY FAMILY

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