



بسم الله الرحمن الرحيم

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تم رفع هذه الرسالة بواسطة / حسام الدين محمد مغربي

بقسم التوثيق الإلكتروني بمركز الشبكات وتكنولوجيا المعلومات دون أدنى

مسئولية عن محتوى هذه الرسالة.

ملاحظات : لا يوجد





**Ain Shams University
Faculty of Science
Chemistry Department**



Synthesis, spectral and chemical reactivity studies of ruthenium complexes of flexible pyridyl polydentate ligands and their immobilized derivatives in solid supports

A Thesis Submitted for the Degree of Ph.D.

By

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M.Sc. (2018)

To

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قالوا

سببنا أنك لا تعلم لنا
إلا ما علمتنا أنك أنت
العليم العظيم

صدق الله العظيم

سورة البقرة الآية: ٣٢

Acknowledgment

First and foremost, I would like to thank God for giving me the opportunity and well-power to accomplish this work.

*Foremost, I would like to express my thanks to **Prof. Dr. Ramadan Mohamed Ramadan**, for giving me the chance to be one of his students and for his generous advices, valuable discussions and his guidance helped me in all the time of research and writing of this thesis, **Prof. Dr. Ayman Ahmed Abdel Aziz**, who helped me greatly, useful guidance effective contributions, and gave me the confidence to express my ideas freely, **Dr. Mostafa Abdellah Sayed**, for the continuous support of my Ph.D. Study and research, for his patience, motivation, enthusiasm, and immense knowledge.*

Last but not the least, I would like to thank my family: my parents and my wife, for supporting me spiritually throughout my life.

Nihad Rashid

ABSTRACT

Six new bicompartiment Schiff bases were prepared via condensation of 2-benzoylpyridine, Di(2-pyridyl)ketone, 2-hydroxy-3-methoxy benzaldehyde with the diamines diethylenetriamine (Dien) and 2,2'-(ethylenedioxy)-bis-(ethylamine) (EDEA) in 2:1 molar ratio using standard synthesis methods. A new series of ruthenium(II) and ruthenium(III) complexes were also prepared and fully characterized by elemental analysis, FT-IR, ^1H -NMR, UV-vis, conductivity, and magnetic susceptibility measurements. Biological activities of the synthesized ruthenium(II) complexes were investigated by studying their ability to interact with CT-DNA, antioxidant scavenging, cytotoxicity against some cancer line cells. In addition, the Ru(II) complexes were immobilized on silica surface and factors affecting their adsorption capacity such as pH, contact time and silica dose were studied.

KEYWORDS: Flexible ligands; Tetradentate dipyridyl derivatives; Ruthenium complexes, Bio efficiency; Solid support.



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