

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ  
قَالُوا سُبْحَانَكَ لَا عِلْمَ لَنَا  
إِلَّا مَا عَلَّمْتَنَا إِنَّكَ أَنْتَ  
الْعَلِيمُ الْحَكِيمُ

(البقرة ٣٢)

## DEDICATION

This thesis is dedicated to

- **The soul of my father,**

Who taught me that the best kind of knowledge to have, is that which is learned for its own sake.

- **My mother,**

Who carried the responsibility of brining me and my brothers after the death of my father.

- **My brothers,**

Ahmed and Mohanad, for their love and support throughout the years.

## Acknowledgments

I express sincere appreciation to Dr.Elmugdad Ahmed Ali for his guidance and insight throughout the research.

Thanks go to the other faculty members, for their valuable suggestions and comments.

The technical assistance of Ustaz Abdo Alkareem, Ustaz Abdo Alhameed, and Ahmed Abdo Alazeem is gratefully acknowledged.

Special thanks for Ustaza Safaa Abdo albagi for her great efforts 9n performing the instrumental work. Best of thanks are extended to my cousin Ahmed Mohamed Abdo Elmajed for technical support.

I express my thanks and appreciation to my family for their understanding, motivation and patience. Lastly, , I am thankful to all colleagues and friends who made my stay at

the university a memorable and valuable experience.

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## Abstract (in English)

**The aim of this research is to test the validity and reproducibility of Mohr's titration, against different parameters, test solutions (NaCl) were prepared at different concentrations, standard silver nitrate solutions were also prepared at different concentrations, titrations were carried using potassium chromate (5%) as indicator, and the results were recorded. Most of the results showed high validity and reproducibility.**

**Different amounts of indicator were also prepared to examine which is the suitable amount of indicator can be used in Mohr's titration, results confirmed that 5% indicator the more suitable as cited in the literature.**

**Mohr's titration was carried out at different pH's to examine the best pH for this titration, the pH (6.807) was found to be the most suitable pH for Mohr's titration.**

**Mohr's titration has been done in different temperature to examine validity of this titration in different temperatures.**

**Parallel to Mohr's titrimetric method, conductimetric and ion-selective electrode measurements were carried out, the obtained data showed similar results between titrimetric and conductimetric method, due to sensitivity of ion-selective electrode technique its results were rather low compared to both other techniques.**

## ملخص البحث

الهدف من هذا البحث هو اختبار صلاحية ومدى تكرارية النتائج المتحطة عليها عند إجراء معاييره موهر عند مختلف الظروف المعملية، تم تحضير المحاليل القياسية المستخدمة في هذه المعاييره (نترات الفضة و كلوريد الصوديوم) بتركيز مختلفة. تم إجراء المعاييره باستخدام هذه التراكيز المختلفة، تم تجهيل النتائج. معظم النتائج أظهرت صلاحية وتكرارية عالية.

أيضاً تم إجراء معاييره موهر باستخدام كميات مختلفة من تركيز الأدله (الدليل المستخدم هو كرومات البوتاسيوم) وذلك لمعرفة أي تركيز هو المناسب لإجراء هذه المعاييره، النتائج المتحصل عليها أوضحت أن التركيز 5% هو التركيز المناسب لإجراء هذه المعاييره. وهو التركيز الموصي به في المراجع والدوريات العلميه.

تم إجراء معايرة موهر في قيم مختلفة من الأس الهيدروجيني بهدف اختبار الأس الهيدروجيني المناسب. ثبت أن أنسب قيمة (6.807). تم إجراء هذه المعاييره أبطأ تحت درجات حرارة مختلفة لاختبار صلاحية هذه المعاييره في درجات الحرارة المختلفة.

بالإضافة إلى طريقة المعاييره العادية، تم إجراء معاييره موهر بطريقتين آليتين:

معايرات التوصيليه والطريقة الأخرى باستخدام قطب الكلوريد الانتقائي. أوضحت النتائج المتحصل عليها تقارب شديد ما بين المعاييره الحجمية ومعايرات التوصيليه، بينت النتائج المتحصل عليها بواسطة قطب الكلوريد الانتقائي منخفض بالمقارنة مع التقنيتين الأخرتين، وهذا يعزي إلى أن استجابة الجهاز للتركيز العاليه ضعيفة نوعاً، وحتى التراكيز المنخفضة أدت إلى نتائج لايمكن الاعتماد عليها.

