

Dedication

To my father and mother,

And to Those

Whom I love.....

Acknowledgement

* My praise and thanks to Allah, who gave me the strength to conduct such work.

* I am greatly indebted to my supervisor Dr. Abd Elsalam Abdalla

* Thanks are also due to all those who helped and encouraged me to do this work.

Abstract

One hydroxamic acid (N-Phenylbenzohydroxamic acid) was prepared and used as a ligand with four different metal ions, Chromium (III), Iron (III), Cobalt (II) and Copper (II). The hydroxamic acid was characterized by its molecular weight and melting point.

The free ligand and complexes were studied spectroscopically using IR, UV/VIS techniques. In order to obtain the metal-ligand ratio, the Jobs continuous variation method was applied and it was found to be (1:3) for Chromium (III) and Iron (III), (1:2) for Cobalt (II) and Copper (II); using the Job method, the stability constants of these complexes were determined and were found to be as follows :

Cr (III) - N-Phenyl benzohydroxamic acid = 8.858×10^{10} > Fe
(III) - N-Phenyl benzohydroxamic acid = 7.24×10^{10} > Cu (II) -
N-Pheny lbenzohydroxamic acid = 6.4668×10^7 > Co (II)
- N-Phenyl benzohydroxamic acid = 5.5177×10^7 .

الخلاصة

تم تحضير أحد الأحماض الهيدروكسيميّة (ن-فينيل بنزوهيدروكسامك أسيد) كلا قطع عدد من الأيونات الفلزّية وهى الكروم (III)، الحديد (III)، الكوبالت (II) والنحاس (II).

تم التعرف على الحمض عن طريق تحديد الوزن الجزيئي ودرجة الانصهار كما تمت دراسة أطياف المعقدات الفلزّية باستخدام طيف الأشعة تحت الحمراء والأشعة فوق البنفسجية . كما تم تحديد النسبة المولية بين الفلز و اللا قط باستخدام طريقة جوب للتغير المستمر و قد وجد أن النسبة بين الفلز واللا قط (3:1) في حالة الكروم (III)، والحديد (III) و (2:1) في حالة الكوبالت (II) والنحاس (II). كذلك تم حساب ثابت الاستقرار لهذه المعقدات من النتائج المتحصل عليها وفقاً لطريقة جوب وكانت النتائج كالآتي:

Cr (III) - N-Phenyl benzohydroxamic acid = 8.858×10^{10} > Fe

(III) - N-Phenyl benzohydroxamic acid = 7.24×10^{10} > Cu (II) -

N-Phenyl benzohydroxamic acid = 6.4668×10^7 > Co (II)

- N-Phenyl benzohydroxamic acid = 5.5177×10^7 .

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