



## Dedication

To my family

To my friends

And to my college

With my love

# Acknowledgement

**.Praises and thanks to almighty Allah**

**Special and deep thanks to my supervisor**

**Dr. abdalsalam abdallah dafaallah, for his permanent support  
and encouragement**

**I would like to express my gratitude to all those who helped me  
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**Deep thanks would go to all staff of Ibsina hospital - urinary  
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## Abstract

The purpose of this study was to investigate the composition of kidney stones removed from Sudanese patients. Ten samples were collected after surgery (3 females and 7 males; age range 2 to 70 years). Kidney stone samples were analyzed by several spectroscopic methods: inductively coupled plasma, optical emission spectroscopy (ICP/ES), X-ray fluorescence spectroscopy (XRF), Fourier Transform Infra Red (FTIR) Spectroscopy techniques in the region between (500-4000 cm) and Ultra violet spectroscopy. Statistical analysis has been carried out for data of patients with urinary stones for the years from 2007 to 2011 from ibn sina hospital by using SPSS .program

The Analysis of elemental by ICP was carried out to determine the concentrations of these elements Sodium(Na), Potassium( K), Calcium (Ca) , Magnesium(Mg), Manganese (Mn) , Iron( Fe), Zinc( Zn) ,Chromium (Cr), Molybdenum (Mo), and Cupper (Cu). Elements Mg, Ca, P, Na and K found at high concentrations more than other elements. Also elemental analysis by XRF was carried out to determine the concentrations of exist .element present in samples1, 2,4,5,6 and 8

From the result of IR spectra indicate that 80% of stone samples are composed from calcium oxalate and UV spectra show that the wavelength of all samples in the .range 233-257nm

Statistical analysis indicated that males are commonly more than females to stone formation, and ages have ability to stone formation in the range 16-60 years.

## الملخص

الغرض من هذه الدراسة التحقق من مكونات وانواع حصاوي الكلي المستخرجة من المرضى السودانيين. وقد جمعت العينات العشرة بعد الجراحة (3 اناث و 7 ذكور) وتم تحليل العينات بعدة مطيافيات باستخدام تقنية بلازما الحث المزدوج /الانبعاث الضوئي الطيفي (ICP/ES), مطيافية الاشعة السينية (XRF), مطيافية الأشعة تحت الحمراء ( FTIR) في المنطقة الواقعة بين (500-4000 سم<sup>-1</sup>) و مطيافية الاشعة فوق البنفسجية (UV) وأجري التحليل الإحصائي لبيانات مرضى حصاوي الكلى للسنوات من 2007 حتى 2011 من مستشفى بن سينا باستخدام برنامج التحليل الإحصائي. أجرى تحليل للعناصر بجهاز ( ICP/ES لتحديد تراكيز العناصر صوديوم , بوتاسيوم كالسيوم ,المغنيزيوم, المانجنيز ,الحديد ,النحاس , الكروم, الموليبيديوم والحديد وجد ان التراكيز عالية في كلا من المغنيزيوم , الكالسيوم ,الفسفور والصوديوم. وتم ايضا التحليل العنصري (XRF) لتحديد تركيز العناصر الموجودة في العينات (1,4,5,6,8). نتيجة IR تشير الي ان 80% من عينات الحصاوي تتكون من اكسالات الكالسيوم . واطياف الاشعة فوق البنفسجية تدل علي أن الطول الموجي لكل العينات في المدي 233-257nm. وإشارة التحليل الاحصائي الي ان الزكور اكثر شيوعا من الاناث لتكوين الحصاوي وأن الاعمار التي لديها القدرة علي تكوين الحصاوي في مدي 16-60.

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