

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

﴿ اللَّهُ نُورُ السَّمَاوَاتِ وَالْأَرْضِ مَثَلُ نُورِهِ كَمِشْكَاةٍ فِيهَا
مِصْبَاحٌ الْمِصْبَاحُ فِي زُجَاجَةٍ الزُّجَاجَةُ كَأَنَّهَا كَوْكَبٌ دُرِّيٌّ
يُوقَدُ مِنْ شَجَرَةٍ مُبَارَكَةٍ زَيْتُونَةٍ لَا شَرْقِيَّةٍ وَلَا غَرْبِيَّةٍ يَكَادُ
زَيْتُهَا يُضِيءُ وَلَوْ لَمْ تَمْسَسْهُ نَارٌ نُورٌ عَلَى نُورٍ يَهْدِي اللَّهُ
لِنُورِهِ مَنْ يَشَاءُ وَيَضْرِبُ اللَّهُ الْأَمْثَالَ لِلنَّاسِ وَاللَّهُ بِكُلِّ

شَيْءٍ عَلِيمٌ ﴿

الآية الخامسة والثلاثون من سُورَةِ النُّورِ

DEDICATION

To my mother

Father

Family

Friends

Partners at work

To all who helped me in success of this research

Mohammed

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First Thanks to God for guiding me to conduct this study, there are a number of people without whom this thesis might not have been written, and to whom I am greatly indebted.

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ABSTRACT

In this work uric acid of different blood serum was investigated using Raman spectroscopy as invasive technique. Different samples (15) from patients with renal failure in homo dialysis unit – Soba University Hospital were collected. The concentration of Uric Acid was measured with conventional technique, and then the blood serum samples stored less than 80 c°. Raman spectra of samples was obtained without any preparation using Raman spectrometer with diode laser as excitation source ($\lambda = 532 \text{ nm}$, $P = 40 \text{ mW}$) using software associated with the spectrometer system. The spectra were truncated and the peak intensities at the assigned wavenumber in cm^{-1} were determined.

The result reveals the presence of peaks from most of the samples at their position (in wavenumber) with slight shifts and it indicated the presence of Uric Acid compound and the peaks are 471.9, 582.1, 628.4, 785,997.9, 1041.3,1234.6, 1269.9, 1594.2, 1653.2 cm^{-1} .

From the result above were a linear relation between the measured concentration and the intensity of the peak at the each wavenumber from samples was found which leads to an indication of the applicability of this technique in quantitative analysis.

المستخلص

في هذا العمل ، تم التحقيق من حمض اليوريك في عينات مختلفة من بلازما الدم باستخدام مطيافية رامان كتقنية تحقق. جمعت عينات (15 عينة) ذات تراكيز مختلفة من المرضى المصابين بالفشل الكلوي من وحدة غسيل الكلى بمستشفى سوبا الجامعي، وقيس تركيز حامض اليوريك في هذه العينات، وجمدت العينات الى 80 درجة مئوية للتخزين ، و حصلت أطياف رامان وذلك باستخدام مطياف رامان الذي يستخدم ليزر الديود ذو الطول الموجي 532 نانومتر، و الطاقة 40 ملي واط ، وتم تقطيع أطياف رامان وحساب شدة القمم المستهدفة في طيف رامان لحمض اليورك القياسي بواسطة البرنامج المصاحب لمطياف رامان.

اوضحت النتائج ظهور القمم المستهدفة في جميع العينات (في العدد الموجي) مع انتقال صغير لموضع اخر (في العدد الموجي) وهذا يشير الى وجود حمض اليوريك في الدم والقمم هي 471.9, 582.1, 628.4, 785,997.9, 1041.3, 1234.6, 1269.9, 1594.2, 1653.2 cm^{-1} .

من النتائج اعلاه أوجدت العلاقة الخطية بين التركيز المقاس وشدة القمم المستهدفة لكل الاعداد الموجية في العينات وهذا دل على مؤشر لصلاحية إستخدام هذه التقنية في هذا النوع من القياسات .

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