

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

: قال تعالى

الرَّحْمَنُ (١) عَلَّمَ الْقُرْآنَ (٢) خَلَقَ الْإِنْسَانَ (٣) عَلَّمَهُ الْبَيَانَ (٤)

صدق الله العظيم

(سورة الرحمن الآيات من ١-٤)

Dedication

I dedicate this research to

My magnificent father

My beloved mother

Who taught me how I could be humanate

For my husband

My beloved brothers and sisters

My friends and my colleagues

The persons whom I love, respect and
appreciate

My babies Hiam and Mohammed

&

Every one from whom I learned

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Abstract

This study was carried out in Khartoum state during the period from November to May 2010 as extension to the previous research. The research aimed to determine the frequency of *Citrobacter freundii* among patients with urinary tract infection, also it aimed to determine the frequency of extended spectrum beta lactamases (ESBL) in this species by using modified Kirby–Bauer disc diffusion method. Among three hundred and eleven (n=311) patients, 11 (3,5%) were found to have UTI caused by *Citrobacter freundii* among which eight (72,7%) were considered as extended spectrum beta lactamases producer.

The research was extended to determine the most frequent gene which is responsible for this phenomenon. Re-identification of the isolate was done by colonial morphology. Gram's stain and biochemical tests using API20E. Modified Kirby–Bauer disc diffusion method was adopted to evaluate the resistance rate of *C. freundii* to penicillin and third generation cephalosporins.

Finally, DNA was extracted from each strain by boiling method and then PCR technique was adopted to detect the presence of TEM gene in these isolates. The results showed that TEM gene existed in all strains, these findings suggested that TEM gene may be the most dominant factor that induce ESBLs phenomenon.

ملخص البحث

تمت هذه الدراسة في ولاية الخرطوم خلال الفترة من نوفمبر 2009 حتى مايو 2010 امتدادا على البحث السابق . هدفت هذه الدراسة لتحديد تردد مدى انتشار بكتريا الليمونية الصديقة ضمن مرضي مصابون بالتهابات المجاري البولية, كما هدفت الدراسة لتحديد تردد انزيمات بيتا لاكتام واسعة الطيف في نوع الليمونية الصديقة بواسطة طريقة كيربي - بوار المعدلة.

ضمن ثلاثمائة و احدى عشر مريض (311) وجد ان 11 (3,5%) مصاباً بالتهابات المجاري البولية المسببة بواسطة الليمونية الصديقة . الليمونية الصديقة ثمانية (7,72%) لديهم عزلات تمتلك هذه الظاهرة

امتدت هذه الدراسة لاكتشاف الجين المسؤول عن هذه ظاهرة الانزيمات واسعة الطيف. تم اعادة التعرف على العزلات بواسطة الشكل المستعمري و صبغة جرام و اختبار حزمة الأنزيمات الكشفية العشريه ايضا اجري اختبار الحساسية ضد مضادات البنسلين و الجيل الثالث من السفالوسبورين.

اخيرا استخلص الحمض النووي من قوص الأوكسجين للسلاطات باستعمال طريقة الغليان ومن ثم اخضع لتفاعل البلمرة المتسلسل للكشف عن وجود جين التيمونيرا في السلاطات . أظهرت النتائج وجود جين تيمونيرا في السلاطات الثمانية وخلصت الدراسة إلى أن جين تيمونيرا يمكن اعتباره عاملا مهما في تحفيز هذه الظاهرة

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