

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

فَالْهُنَّ عَالَمُونَ

وَفَوْقَ كُلِّ ذِي عِلْمٍ عَلِيمٌ

صَدَقَ اللَّهُ الْعَظِيمُ

سورة يوسف الآية (76)

Dedication

I dedicate this research to :

My parents

Teachers,

a

nd brothers

Acknowledgment

Firstly thanks to Almighty **Allah** for giving me knowledge and patience to complete this work.

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Abstract

Beta- lactamases continue to be the leading cause of resistance to β -lactam antibiotics among gram-negative bacteria. In recent years there has been an increased incidence and prevalence of Extended-spectrum lactamases (ESBLs). This study was conducted in the Research Laboratory in Sudan University of Science and Technology. The study was carried out during the period from December 2009 to May 2010, to detect TEM, SHV and CTX-M genes in ESBLs-producing *Klebsiella oxytoca*.

The *Klebsiella oxytoca* strains were obtained from the Research Laboratory. All strains were checked for purity by sub-culturing on nutrient agar and examined microscopically. Bacterial DNA was extracted from each isolate using boiling method. Multiplex Polymerase chain reaction (PCR) was adopted to detect these genes. The result revealed presence of *TEM* gene in nine isolates. It is concluded that, *TEM* gene is the commonest gene in *K. oxytoca* isolates. Further studies with large number of bacterial isolates are required to validate this results.

المستخلص

تعتبر الإنزيمات الممتدة الطيف (بيتا لاكتاميز) واحدة من اهم اسباب المقاومة لمجموعة المضادات الحيوية البيتا لاكتام وسط البكتيريا سالبة صبغة جرام. ومؤخرًا رصدت زيادة في معدل حدوث وانتشار هذه الانزيمات. هذه الدراسة تُقدّم في مختبر البحوث في جامعة السودان للعلوم والتكنولوجيا في الفترة من ديسمبر 2009 إلى مايو 2010، للكشف عن الجينات (*TEM* و *SHV* و *CTX-M*) في الكلبسيلة المنتجة للحمض المنتجة لإنزيمات البيتا لاكتام الممتدة الطيف.

تم الحصول على سلالات الكلبسيلة المنتجة للحمض من مختبر الابحاث الجامعية والتأكد من نقوتها بإعادة تزريعها على الأجار المغذي ومن ثم فحصها مجهريا. تم استخلاص الحمض النووي منقوص الأكسجين للسلالات باستعمال طريقة الغليان. استخدمت طريقة تفاعل البلمرة المتسلسل المتعدد الإرسال للكشف هذه الجينات. اظهرت النتيجة وجود الجين (*TEM*) في السلالات التسعة. وخلصت الدراسة إلى أن الجين *TEM* هو الأكثر شيوعا في سلالات الكلبسيلة المنتجة للحمض. وان دراسات إضافية بعدد كبير من العزلات البacteriية مطلوبة لإثبات هذه النتائج.

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