

# الآية

بسم الله الرحمن الرحيم

قال تعالى:  
وَالْبَلَدُ الطَّيِّبُ يَخْرِجُ نَبَاَهُ بِإِذْنِ رَبِّهِ وَالَّذِي  
خَبُثَ لَا يَخْرِجُ إِلَّا تَكِيدًا كَذَلِكَ نُصَرِّفُ الْآيَاتِ  
لِقَوْمٍ يَشْكُرُونَ (58)

صدق الله العظيم

سورة الاعراف ( 58 )

# Dedication

I dedicate this research to

My mother whom the candle which burns to light my life  
greatest love.

My father the source of Superstitious.

Who have made it possible, those who always been on  
my side,

My husband my brothers, My sisters

Whom I feel about them with beautiful emotion

To them all I dedicate this project as a sign

Of thanks.

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## Abstract

Extended-spectrum  $\beta$ -lactamases (ESBLs) have become widespread throughout the world and are now found in a significant percentage in *S. paratyphi* A strains in certain countries. 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 *S. paratyphi* A.

*S. paratyphi* A 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 strain using boiling method. Multiplex PCR was adopted to detect these genes. The result revealed presence of *TEM* gene only in seven of the isolates. It is concluded that, TEM gene is the commonest gene in *S. paratyphi* A isolate. Further studies required to confirm the presence of these genes in clinical Sudanese isolates.

تعتبر إنزيمات البيتا لاکتام واسعة الطيف منتشرة في كل العالم وتوجد بنسب وافية في السالمونيلة نظيرة التيفية أ في دول معينة. هذه الدراسة تُقَدِّمُ في مختبر البحوث في جامعة السودان للعلوم والتكنولوجيا في الفترة مِنْ ديسمبر/ 2009 إلى مايو/ 2010، للكشف عن الجينات ( *TEM* و *SHV* و *CTX-M* ) في السالمونية نظيرة التيفية أ المنتجة لإنزيمات بيتا لاکتام واسعة الطيف.

تم الحصول على سلالات السالمونية نظيرة التيفية أ من معمل الابحاث بالجامعة. اختبرت كل السلالات للتأكد من نقاوتها بإعادة ترريعها على الأجار المغذي ومن ثم فحصها مجهرياً. 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 سبع سلالات. وخلصت الدراسة إلى أن الجين *TEM* هو الأكثر شيوعاً في سلالات السالمونية نظيرة التيفية أ. وأن مزيداً من الدراسات مطلوبة للتأكد من وجود هذه الجينات في العزلات الاكلينيكية السودانية.

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