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**HIGH-LEVEL CEFOTAXIME RESISTANT PROTEUS MIRABILIS STRAIN  
ISOLATED FROM A TUNISIAN HOSPITAL: CTX-M-8 EXTENDED-  
SPECTRUM  $\beta$ -LACTAMASE COPRODUCED WITH A PLASMID MEDIATED  
AMPC  $\beta$ -LACTAMASE**

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**.ABSTRACT**

The aim of this study is to determine the implication of the biochemical and the molecular mechanism and to describe the properties of an extended-spectrum  $\beta$ -lactamase (ESBL) CTX-M-8 coproduced with an AmpC  $\beta$ -lactamase which was reported for the first time in Africa. A clinical isolate of *Proteus mirabilis* FS6449 was isolated from a patient hospitalized at an intensive care unit of the Military Hospital in Tunisia in 2009. Antimicrobial susceptibility was determined with the disk diffusion method according to CLSI guidelines and revealed that this strain was resistant to expanded-spectrum  $\beta$ -lactams. Analysis of *P. mirabilis* FS6449 by double-disk synergy test yielded a positive result suggesting the production of ESBLs. Sonicate of the isolate hydrolysed cefotaxime and benzylpenicillin. Isoelectric focusing exhibited four  $\beta$ -lactamase bands of isoelectric points (pIs) 5.6, 6, 6.5 and over 7.6. PCR and sequencing experiments revealed the presence of four  $\beta$ -lactamase genes encoding TEM-2, CTX-M-8, TEM-24, and an AmpC enzyme. Among them, the genes encoding TEM-24 and an AmpC enzyme were transferred to the recipient by conjugation experiments.

**Keywords: Resistance;  $\beta$ -lactamase; *Proteus mirabilis***