Detection of Yersiniabactin system in ESBL-producing *Enterobacteriaceae* isolates

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Abstract

Siderophores are small molecules that bind and act as vehicles of ferric iron across the cell membrane of microorganisms. Siderophores are important virulence factors and are known for foraging Fe(III) from their environment or host. Many pathogens, such as uropathogenic *Escherichia coli*, encode for multiple siderophores in their genome to sequester ferric iron, ultimately enabling them to cause both systemic and/or localized infections within their host. Yersiniabactin (Ybt) siderophore and its cognate receptor FyuA, are key virulence factors that appear to enhance the ability of bacteria to grow within the host. Deletion of YbtA or FyuA leads reduced virulence of uropathogenic *E. coli*. In this study, we analyzed the prevalence of Ybt genes in antibiotic resistant bacteria isolated from a waste water treatment plant. 36 isolates were tested for the presence of *ybtA* and *fyuA* genes by polymerase chain reaction (PCR) and gel electrophoresis. 17 of the strains were positive for *ybtA*, whereas 6 of the strains were positive for *fyuA*. However, 4 out of 36 strains were positive for both *ybtA* and *fyuA*. These 4 strains consist of ¾ *E. coli* and a Klebsiella sp.

Keywords: microbiology, antibiotic, antibiotic resistance, genes