

ICAAC/ICC 2015
September 17–21, 2015 | San Diego, CA
San Diego Convention Center

First Occurrence of *Citrobacter farmeri* Producing IMP-8 in a Novel Class 1 Integron.

Denise De Belder¹, Ezequiel Albornoz¹, Ana Togneri², Melina Rapoport¹, Laura Podestá², Marcela Perez², Noelia Piergrossi¹, Fernando Pasteran¹, Alejandra Corso¹ and Sonia Gomez¹.

¹INEI - ANLIS. "Dr. Carlos G. Malbrán", Argentina

²HIGA Evita Lanus, Buenos Aires Province, Argentina

Background. *C. farmeri* was first recognized by Farmer et al. in 1985. This pathogen is rarely isolated from humans and it has been documented to cause urinary, respiratory and intra-abdominal infections, bacteremia, endocarditis and meningitis. *C. farmeri* has never been associated to antimicrobial resistance. The isolates presented here were isolated from a hospital with previous reports of *bla*_{IMP-8} in *Enterobacter cloacae*. **Objective.** To describe the emergence of *C. farmeri* isolates producing an MBL.

Methods. Two *Citrobacter* spp were recovered from two patients with bacteremia from a general hospital in Buenos Aires province. The patients had been admitted in Jan. and Feb. 2015 to the general ward and coronary unit respectively. Specie identification was performed by MALDI-TOF (Bruker Co). Phenotypic MBL-production was evaluated by synergism between carbapenems and EDTA/SMA discs and by the MHT and Blue-Carba test (BCT). MIC was determined by Phoenix 6.01A and interpretation performed following CLSI criteria. Detection of *bla*_{VIM}, *bla*_{IMP} and *bla*_{NDM} genes and integron array was done by PCR and sequencing. Biparental conjugation was performed using sodium azide resistant *E. coli* J53 as acceptor.

Results. Isolate M19020 and M19031 were identified as *C. farmeri* (score 2.356 and 2.043 respectively). MHT and BCT were positive. MBL production was confirmed by carbapenem/EDTA synergism and PCR. Carbapenem MICs were within the resistant category for imipenem and ertapenem (MIC 8 and >1 µ/ml respectively) and susceptible for meropenem (≤1 µ/ml). Fluorquinolones, colistin and aminoglycosides were susceptible. *bla*_{IMP-8} gene was detected in a novel class 1 integron named In1165 by INTEGRALL containing *bla*_{IMP-8} – *aadA1y*-*bla*_{OXA-9} cassettes. Moreover, *aadA1y* and *bla*_{OXA-9} genes are embedded within a same fused gene cassette. *bla*_{IMP-8} from M19031 was successfully transferred by conjugation.

Conclusions. To our knowledge, this is the first report of *C. farmeri* producing IMP-8 carbapenemase in In1165. This report highlights the threat of unusual *Enterobacteriaceae* species as potential reservoir of MBLs and other resistance genes.