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Letter to the Editor

Characterization of a small outbreak of *Salmonella enterica* serovar Infantis that harbour CTX-M-65 in Ecuador

Dear Editor,

Travellers' diarrhoea (TD) is the foremost health problem contracted abroad by United States citizens, affecting between 20% and 60% of those travelling to developing countries (www.cdc.gov).

The aim of this study was to report the first *Salmonella* spp. resistant to broad spectrum antibiotics reported in Ecuador.

Identification and sensitivity profile were performed using VITEK2® compact (bioMérieux, USA). Serotype was confirmed by agglutination in the National Reference Laboratory, INSPI, Quito, Ecuador.

Plasmid extraction was performed following the manufacturer's instructions (Pure Yield Plasmid Miniprep System, Promega, United Kingdom). ERIC-PCR was performed following the conditions previously described.[1]

The PCR for amplification of the CTX-M gene was performed as previously described.[2] Purification of the PCR amplification from the agarose gel was performed following the manufacturer's instructions (Wizard® SV Gel and PCR Clean-Up System, Promega) and sequenced in Macrogen, South Korea.

From a total of 28 strains of *Salmonella* spp. isolated in the laboratory (January 2014–July 2015), five isolates were of the same clone which presented high resistance to antibiotics. The identification and serotyping showed that the strain corresponded to *Salmonella enterica* serovar Infantis harbouring CTX-M-65. ERIC-PCR confirmed the isolates were of the same clone (Fig. 1).

This is the first time a CTX-M 65 has been found outside of Asia, highlighting the importance of a good antibiotic policy in all countries as resistance can be easily disseminated around the world due to travel and trade.

The rate of food-borne diseases have increased since 2011, which could be due to better reporting, better detection, higher awareness of the importance of these diseases among medical professionals; nonetheless, it could also translate a real increase in prevalence. It is important to note that daily ingestion of street food has become rather common. Food is

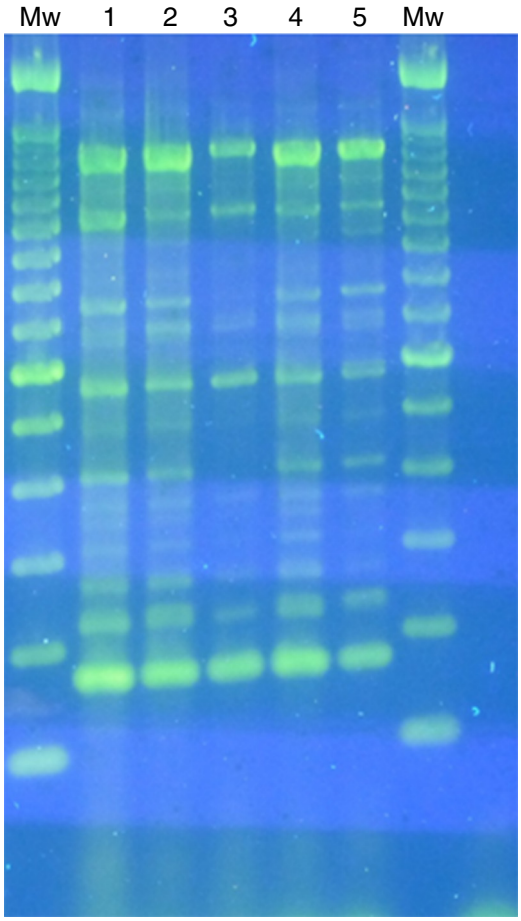

Fig. 1 – ERIC-PCR of the five strains of *Salmonella* Infantis that presented resistance to cephalosporins. Each line corresponds with one of the clinical isolates of the *Salmonella* Infantis, showing on the gel the same profile and genotype. Mw corresponds with the molecular Weight. The LANES from 1 to 5 corresponds with one sample of each of the five patients that harbour *Salmonella* Infantis.

often sold from unsealed containers or trollies that leave it open to contamination and sun-exposed. In general, street food vendors have no access to facilities for good hand hygiene and, most importantly, regulations for food hygiene are not rigorously enforced.

CTX-M-like enzymes have been previously reported in *Salmonella* spp. around the world, and also in Latin America[3–5] where CTX-M-2 was isolated. The CTX-M-65 described in this study is most likely chromosomal as all plasmid extractions and transformations were negative.

In this manuscript the authors report, for the first time, a clone strain of *Salmonella* Infantis harbouring CTX-M-65 that is circulating in Ecuador. Food-borne diseases, as in most developing countries, are a serious issue in Ecuador, as information about these diseases and the importance of hygiene are poorly disseminated, compounding the risk of transmission. Our findings underscore the importance of a good hygiene policy when manipulating food and the need to implement regulations and laws aiming at controlling food quality offered for sale to general public. Enforcement of hygienic control of food production and marketing is essential.

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Authors' contribution

Monica Cartelle Gestal: Principal investigator. Design, development of the project. Elaboration and submission of the manuscript.

Jeannete Zurita: Clinical microbiology. Diagnosis of Salmonella, identification and clinical test. Elaboration of the manuscript.

Ariane Paz y Mino: Clonallity assays.

David Ortega-Paredes: Molecular studies.

Iliana Alcocer: Advice and counseling about Salmonella spp.

Conflicts of interest

The authors declare no conflicts of interest.

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