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Cronobacter sakazakii, a potential cause of food-borne outbreak

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In October 2016, an outbreak of Acute Gastroenteritis (AGE) affecting 156 cases in a local senior high school was reported. We carried out epidemiologic, microbiologic, and molecular investigations to identify the causative agent and contamination source of the outbreak. A case control study that included randomly selected 70 case patients and 295 asymptomatic student controls was conducted. 107 clinical and foods/environmental samples were collected and six strains of *Cronobacter sakazakii* were recovered following conventional bacterial isolation procedure. The isolates were further identified and compared using Pulsed-Field Gel Electrophoresis (PFGE), Multi-Locus Sequence Typing (MLST) and Whole Genome Sequencing (WGS). MLST results targeting seven loci (atpD, fusA, glnS, gltB, gyrB, infB and pps) and phylogeny of Whole Genomic Single Nucleotide Polymorphisms (wgSNPs) were obtained to trace back the potential contamination source in this outbreak. The epidemiological evidence indicated a strong association between eating supper at the school canteen on the day of the outbreak onset and having acute gastroenteritis, as revealed by the Odds Ratio (OR: 95.32) from the case-control study. *C. sakazakii* Isolates S2 from a patient's rectal swab and S4 from a leftover food sample shared identical PFGE pattern and were both identified as sequence type (ST) 73 and clustered together in the wgSNP phylogeny. Isolates S1 and S3, from two patients' rectal swabs separately, shared another same PFGE pattern and both belonged to a newly defined sequence type 567. Isolates S5 and S6, both from swabs of food delivery boxes, were identified as ST4 with different PFGE patterns from each other. The interesting feature of this study was the implication of *C. sakazakii* as a causative agent in food-borne AGE occurring in healthy adults, although *C. sakazakii* is considered as an opportunistic pathogen and generally affects neonates, infants and immuno-compromised adults.

Biography

Wei Yong has completed her PhD in 2011 from Nanjing Medical University. She is the Chief Assistant of Microbiology Department in Nanjing Municipal Center for Disease Prevention and Control. She has published more than 10 papers in reputed journals.

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