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Ingesting antibiotic resistant bacteria along with fresh fruits and vegetables and what are the possible consequences

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If left untreated, the antibiotic resistance problem might engage us in a difficult global war against tiny bacterial superbugs. Local efforts to address and manage this problem in various environments will eventually contribute to a better global tackling. Fresh fruits and vegetables can be heavily inhabited by bacteria that can act as a significant reservoir for antibiotic resistance genes. This study was aimed to determine antibiotic resistance of bacteria isolated from fresh produce. One hundred and five samples of fresh fruits and vegetables originated from different countries were used to isolate 3 groups of bacteria; Enterobacteriaceae (92 isolates), *Enterococcus* (31 isolates) and *Staphylococcus aureus* (3 isolates). Bacteria were identified by PCR and VITEK 2 system and many of them were opportunistic pathogens. Enterobacteriaceae bacteria were resistant to ampicillin (57.6%), cephalothin (42.4%), cefoxitin (26.1%), amoxicillin/clavulanic acid (19.6%), tetracycline (8.7%), nalidixic acid (5.4%), trimethoprim (5.4%), kanamycin (3.3%) and chloramphenicol (1.1%). Some isolates showed intermediate resistance to imipenem (3.3%) and ertapenem (1.1%). Resistance to cefoxitin indicated possible presence of Ambler class C (AmpC) β -lactamase and this was confirmed by a three dimensional method in 22 isolates. *Enterococcus* bacteria were resistant to tetracycline (19.4%), erythromycin (9.7%) and chloramphenicol (3.2%). Intermediate resistance to ciprofloxacin (51.6%) and vancomycin (9.7%) was also found. *S. aureus* isolates were sensitive to all antibiotics tested. These results suggest that fresh produce may play an important role in disseminating antibiotic resistant bacteria through the food chain. The possible consequences for ingestion of bacteria harboring antibiotic resistant genes and their interaction with gut microbiota are also discussed here.

Biography

Zahra Sulaiman Al-Kharousi has completed her MSc in 2011 in Food Science and Nutrition, Microbiology. Her specialization in Bachelor was Medical Laboratory Science, Microbiology. She is a Lab Supervisor in the Department of Food Science and Nutrition in College of Agricultural and Marine Sciences, Sultan Qaboos University, Oman. She is currently pursuing her PhD in Food Microbiology. Her research is about resistance of bacteria isolated from fruits and vegetables to antibiotics and disinfectants. She has 3 published papers. She has been known as an outstanding student and had a GPA of 4.0 on a 4.0 scale in her MSc.

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