Antibiotic Resistance Profile among Shiga Toxin-Producing *Escherichia coli* Isolated from dairy cattle

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Shiga toxin-producing *Escherichia coli* (STEC) are foodborne pathogens that can cause serious diseases in humans, including bloody diarrhoea and kidney failure. Ruminants, such as cattle, are considered the main reservoirs and source of STEC. Human infection can occur through contaminated food and water, or direct contact with infected animals. STEC antimicrobial-resistance (AMR) is increasingly frequent in patients with serious disease. It is necessary to understand the epidemiology, the emergence, and the prevalence of AMR in STEC isolated from cattle to investigate how resistance spreads from ruminants to humans. Thus, susceptibility tests were performed on 55 STEC strains belonging to 29 serogroups. The strains were isolated from healthy dairy cattle faeces (cows and heifers) in the North of Portugal. Antibiotic susceptibility testing (AST) was performed by disc diffusion method following European Committee on Antimicrobial Susceptibility Testing (EUCAST, 2020) and Clinical and Laboratory Standards Institute (CLSI, 2020). The antibiotics used included penicillins (ampicillin; amoxicillin-clavulanic acid), cephalosporins (ceftazidime; cefotaxime; cefoxitin; cephalothin), carbapenems (imipenem; meropenem), aminoglycosides (kanamycin), phenicol (chloramphenicol), sulphonamides/ trimethoprim (trimethoprim-sulfamethoxazole), fluoroquinolones (moxifloxacin; levofloxacin) and tetracyclines (tetracycline; tigecycline). Results reveal low level of resistance among the isolates tested. However, five (9%) STEC isolates were resistant to one antibiotic, and three (5,5%) to three or more antibiotic classes (multidrug resistance-MDR). The MDR strains were resistant to trimethoprim-sulfamethoxazole, tetracycline and other antibiotics commonly used to treat gastroenteritis. Two strains MDR belonged to O91 serogroup and were founded in heifers in the same farm. O91 is an important serogroup to public health surveillance, as it is commonly associated with contamination of products from animal origin, and it has been isolated from patients with severe gastrointestinal disease. Overall, the AMR did not seem to be widely spread in STEC isolates from cattle; but serotype O91 might be of special concern as two O91-multidrug resistance profiles have been identified.

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