

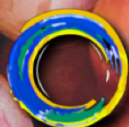
PHENOTYPIC PROFILE OF RESISTANCE TO ANTIMICROBIALS *CRONOBACTER* SPP. ISOLATES FROM A WHEY CONCENTRATION AND DRYING INDUSTRY

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Cronobacter spp. is a pathogenic microorganism that has been isolated in several food categories, such as seasonings, fruits and vegetables, cereals, instant soups and mainly dry mixes. Furthermore, *Cronobacter* can survive adverse environmental conditions. Cases of infections by *Cronobacter* spp. in neonates and immunosuppressed people have already been reported in Brazil and worldwide. Studies carried out in milk powder factories and infant formula production have demonstrated the persistence of this microorganism in the environment due to its strong ability to form biofilms on surfaces. Due to the presence of biochemical substances present in the exopolysaccharide layer of biofilms, *Cronobacter* spp. becomes more resistant to antibiotics. Currently in Brazil, the microorganism is assessed as a mandatory requirement only in infant formulas. Knowing that whey in its different protein concentrations is used as the main ingredient in several ready-to-eat products, *Cronobacter* spp. can be considered a microorganism of great relevance for monitoring in the production chain. The objective of this study was to evaluate the antibiotic resistance profile of *Cronobacter* spp. isolates from a whey concentration and drying industry from December 2022 to October 2023. The 40 isolates obtained were subjected to characterization of their resistance profiles with antimicrobials for enterobacteria according to CLSI (Clinical and Laboratory Standards Institute). For the phenotypic evaluation, the disk-diffusion method was performed and the antimicrobials were evaluated: amoxicillin - AMO (10 µg); ceftiofur - CTF (30 µg); aztreonam - ATM (30 µg); imipenem - IPM (10 µg); ciprofloxacin - CIP (5 µg); tetracycline - TET (30 µg); gentamicin - GEN (10 µg), sulfamethaxazole + trimethoprim - SUT (23.75/1.25 µg), chloramphenicol - CLO (30 µg) and azithromycin - AZI (15 µg). Of the 40 isolates, 7 (17.5%) were resistant to all antimicrobials tested. 95% of isolates were considered resistant to AMO; 85% showed resistance to CTF; 78% were resistant to ATM; 70% showed resistance to CIP; 58% showed resistance to TET; 68% were resistant to GEN; 60% showed resistance to SUT; 30% were resistant to CLO; 90% were resistant to AZI and 100% of the isolates were resistant to IPM. When the resistance profile to at least 3 classes of antimicrobials is presented, we classify the isolates as multidrug resistant (MDR). In this way, we obtained that 90% of the isolates were MDR. Often CLO, CTF and GEN are indicated for the treatment of infections caused by *Cronobacter* spp. Resistance to antimicrobials belonging to the classes of penicillins (AMO), macrolide (AZI), carbapenem (IPM), and third-generation cephalosporins (CTF) has already been described for *Cronobacter* spp. demonstrating possible difficulties in treating infections caused by this microorganism. Furthermore, the high percentage of MDR isolates obtained in this study demonstrates concern for public health, indicating the spread of more resistant strains of *Cronobacter* spp. in the environment.

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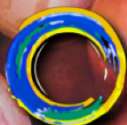




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