

Growth of foodborne pathogens *Listeria* and *Salmonella* and spore-forming *Paenibacillus* in commercial plant-based milk alternatives

An increase in vegan diet preference, lactose intolerance, calorie concern and environmental awareness has led to a rise in the popularity of plant-based alternatives to bovine milk. Non-dairy products are a fast-growing food industry sector; however, there are still gaps in understanding how the known bacterial food contaminants behave in plant-based beverages. The present study is the first to compare the growth of food-pathogens *Listeria monocytogenes* and *Salmonella enterica* and an industrial milk product isolate, spore-forming *Paenibacillus*, in commercially available ultrahigh temperature processed (UHT) bovine milk and plant-based milk alternatives (coconut, almond, cashew). Beverage samples were inoculated with a strain cocktail or individual strains of either *Listeria*, *Salmonella*, or *Paenibacillus*, respectively (approximately 1×10^3 CFU/mL) and stored at chilled and ambient temperatures (4°C, 8°C or 20°C). The findings indicate that the bacterial strains used in the study were capable of proliferating in plant-based beverages at higher rates than in bovine milk at 8°C and 20°C for *Listeria* and 20°C for *Salmonella* and *Paenibacillus*, respectively. No statistically significant difference ($p > 0.05$) in growth rates between different types of tested beverages was observed at 4°C and at 8°C for *Listeria* and *Salmonella* cocktails, respectively. The data presented sheds new light on plant-based beverages to assist food safety authorities in estimating the risk of contamination of plant-based products coming from the raw materials and listeriosis or salmonellosis arising from the consumption of potentially contaminated plant-based beverages.