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**DOMINANT MICROORGANISMS IN MILK AND FERMENTED DAIRY PRODUCTS,  
AND ANTIBIOTIC RESISTANCE OF LACTIC ACID BACTERIA**

The presence of antibiotic resistant bacteria in fermented dairy products is an important and severe public health concern, as it can contribute to the spread of antibiotic resistance through the food chain. Given the potential consequences for human health and food safety, it is justifiable to be concerned about the possibility that lactic acid bacteria (LAB) used in probiotic applications and food fermentations could be sources of antibiotic resistant genes that can be transferred to pathogens, or they can acquire these genes from pathogenic bacteria. Food has drawn more attention in recent years due to its potential to carry genes for antibiotic resistance. Nonetheless, there aren't many comprehensive researches focusing on the antibiotic resistance of food-borne LAB such as lactobacilli, lactococci, and other important genera. Majority of the available data focus mainly on the antibiotic resistance profile of pathogenic and opportunistic bacteria. The present study deals with the investigation of dominant microorganisms in raw milk and fermented dairy products, and antibiotic resistance of lactic acid bacteria.

Dominant bacteria were isolated from raw milk, cheese, cottage cheese, yoghurt, and sour cream using M17, MRS, ChromoBio, CATC, Harlequin, and Baird parker agar medium for cultivation. Identification of the colonies derived from the samples was done using MALDI-TOF MS, while confirmation of *E. coli* and some other bacteria was carried out by species-specific PCR reactions. RAPD-PCR analysis was applied for the molecular characterization of LAB strains. The Kirby-Bauer disk diffusion method was used to evaluate the susceptibility of the isolated bacteria to twelve different antibiotics, including Ampicillin, Tetracycline, Kanamycin, Erythromycin, Azithromycin, Streptomycin, Ciprofloxacin, Vancomycin, Aztreonam, Chloramphenicol, Clindamycin, and Gentamicin.

Forty isolates were obtained from the raw milk sample and the fermented dairy products, out of which thirteen were LAB and twenty-seven isolates proved to be non-LAB strains as determined by MALDI-TOF MS. Species-specific PCR proved, however, the presence of *E. coli*, and confirmed the existence of *Hafnia alvei* strains in cheese and sour cream samples. The antibiotic susceptibility of the LAB strains was tested against twelve different antibiotics, and seven strains including *Lactococcus lactis*, *Lactobacillus curvatus*, and *Lacticaseibacillus paracasei* isolated from raw milk, cheese and sour cream samples showed multi-drug resistance, as their growth was not inhibited by four antibiotics (namely Aztreonam, Ciprofloxacin, Kanamycin and Vancomycin). In conclusion, the study's findings demonstrate that LAB from raw milk, sour cream, and cheese showed multidrug resistance to four different tested antibiotics.

The safety of these bacteria is crucial since they are consumed through food, while the presence of *E. coli* and coliform bacteria in the products indicate that there could be fecal contamination in the case of cheese samples, and this could pose possible threat to public health.