20th European
Gastroenterology and Therapeutics Congress
November 18, 2025 | Webinar

Characterization and antibiotic resistance of lactic acid bacteria isolated from raw milk

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Breast milk is an important source of nutrition for infants which is required for the growth and development. It helps in regulating gastrointestinal function, improving immune system and prevent from acute illnesses. Breast milk contains a beneficial bacteria including Lactobacillus species, which acts as a natural probiotic for the infant's gut. Lactobacillus is a gram positive, rod-shaped, facultative anaerobes. They are non-spore forming, acid tolerance bacteria. They play an important role in fermentation process contributing to the flavour, texture and prevention of the foods. Lactobacillus is associated with various health benefits like improved digestion, Irritable Bowl Syndrome (IBS). Probiotics are live microorganisms that provide health benefits when consumed in adequate quantity. There are various probiotic bacteria such as Lactobacillus, Bifidobacterium and certain strains of Streptococcus. These microorganisms are naturally present in the foods and supplements. These probiotics helps in maintaining health balance of gut bacteria, stimulate immune system, reduce the risk of illness. Due to the excessive use of lactic acid bacteria in food manufacturing or in some other perspective it naturally achieved the antimicrobial resistance. The potential of LAB species to transmit genes for antibiotic resistance to disease renders them a significant threat, surpassing the innocent. Thus, caution is important to emphasize that the lactic acid bacteria utilized in the food sector do not carry genes for resistance and unconsciously are required. This review explores the antibiotic susceptibility of Lactic Acid Bacteria (LAB) sourced from diverse milk types, including cow, goat, donkey, buffalo, sheep, camel and human milk. LAB serve essential functions in regulating gastrointestinal health, enhancing immunity and preventing acute illnesses. The study compares antibiotic resistance among various LAB species isolated from milk samples. Notably, two Lactobacilli species, Lactobacillus johnsonii and Lactobacillus zeae, were investigated for their detection and Antimicrobial Resistance (AMR) in raw milk (from cows, sheep, and goats). While Lactobacilli are commonly found in fermented dairy products and contribute to gut health, the emergence of AMR in these bacteria raises concerns about potential resistance transmission through the food chain.

Biography

Anshika Sharma is associated with the Department of Microbiology at Lovely Professional University, India. She is engaged in academic and research activities in the field of microbiology. Her work reflects a strong interest in modern microbial sciences and laboratory practices. She actively participates in departmental projects, seminars, and scholarly initiatives. Anshika aims to contribute to advancements in microbiological research and education