This study aimed to identify and evaluate the probiotic, technological, and safety properties of Lactic Acid Bacteria (LAB) isolated from raw goat milk. Fifty LAB strains were isolated from 18 goat milk samples and identified based on their morphological, physiological, biochemical, and genotypic characteristics. The dominant genus was Lactobacillus (50%), with a total of 6 genera identified. In vitro experiments showed that over 80% of the representative LAB strains inhibited the growth of tested pathogens. Most strains (70–80%) displayed moderate to high survivability under conditions simulating the digestive tract, including low pH, intestinal juice, pancreatic juice, and bile salts. All strains produced diacetyl, with 73% demonstrating proteolytic activity and 27% exhibiting weak lipolysis. While most LAB strains showed resistance to tested antibiotics, all strains produced exopolysaccharide (EPS) at varying levels, ranging from 20 to 93 mg/L, with Lactobacillus delbrueckii subsp. bulgaricus being the highest EPS producer. Safety assessments revealed that all isolates were non-virulent. A lab-scale fermentation study demonstrated that most LAB strains exhibited starter culture properties, producing firm milk curd. In conclusion, the isolated LAB strains from raw goat milk possess significant potential for use in fermented foods due to their safety, probiotic properties, and technological characteristics.

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