

## CHARACTERIZATION OF THE PROBIOTIC POTENTIAL OF LACTICASEIBACILLUS PARACASEI 2 LB STRAIN

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**Background:** To develop effective probiotics, it is necessary to consider the strain-specific characteristics, which requires detailed genomic and phenotypic studies to understand the functional probiotic mechanisms (Wang J., 2022). The aim of this study is characterization of a probiotic strain *Lactocaseibacillus paracasei* 2 LB.

**Materials and methods:** The potential of the probiotic 2 LB strain from koumiss were studied using a combination of *in vitro* assays and WGS genome analysis (Kandasamy S., 2024).

**Results:** *In vitro* evaluation demonstrated that 2 LB strain was well tolerated in a simulated gastrointestinal environment, grew well at pH = 3.5, 0.3% bile salts and 2-8% NaCl. Analysis of antimicrobial activity by agar diffusion method showed that the 2 LB can effectively inhibit the growth of pathogens *Escherichia coli*, *Salmonella typhimurium*, *Staphylococcus aureus*. The 2 LB strain had high rates of adhesive properties auto-aggregation and co-aggregation to pathogens. A comparative genomic analysis of the core and pan-genome of 2 LB strain was performed. In the 2 LB strain genome, with a size of 3,066,038 nucleotide pairs and a GC content of 46.25%, 2,932 coding DNA sequences (CDS), 6 genes for ribosomal RNA, and 59 genes for trans-

fer RNA were found. In terms of the stability of its genetic material, the absence of the ability to synthesize virulence factors and genes responsible for antibiotic resistance were characterized.

**Conclusion:** The results indicate that the 2 LB strain has potential for probiotic development. WGS genome analysis of the 2 LB strain will be further explored.

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**Key words:** Lacticaseibacillus paracasei, koumiss, probiotic, sequencing

### References:

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