ANTAGONISTIC ACTIVITY OF LACTIC ACID BACTERIA ISOLATED FROM KOUMISS AND SHUBAT

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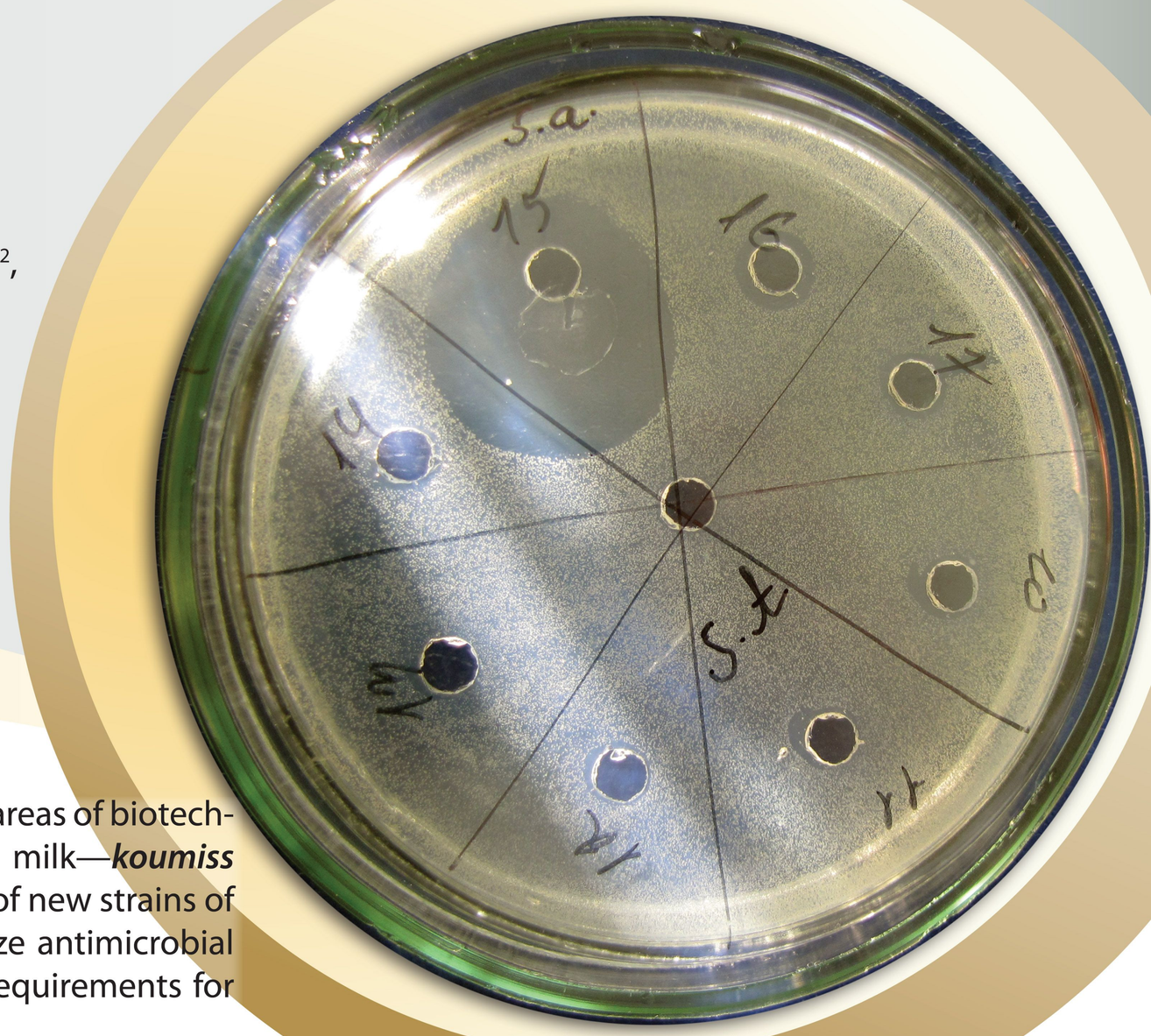

Positive antagonistic effect of Leuconostoc mesenteroides against Salmonella typhimurium.

INTRODUCTION

Probiotics production is one of the most promising and popular areas of biotechnology. Traditional fermented products such as fermented mare's milk—***koumiss*** and fermented camel milk—***shubat*** represent an important source of new strains of lactic acid bacteria (LAB). Lactic acid bacteria are able to synthesize antimicrobial substances, such bacteriocins. Which is one of the indispensable requirements for probiotics production.

The aim of this study was to determine the antagonistic activity of isolated LAB against opportunistic pathogens.

MATERIALS AND METHODS

The antagonistic activity was determined using cell-free supernatantes by agar well diffusion assay. For this study 130 museum LAB cultures isolated from koumiss and shubat (Antigen Co. Ltd.) were used. Inhibitory activity was ivestigated on the following indicator bacteria: ***Salmonella typhimurium***, ***Escherichia coli***, ***Basillus subtilis***, ***Listeria inocula***, ***Basillus cereus***, ***Pseudomonos aeruginosa***, ***Staphylococcus aureus*** (Pasteur Institute, France). Cell-free supernatant (24 h LAB culture) was sterilized (0.42 µm syringe filter (TPP, Switzerland)) and neutralized.

RESULTS

Between 130 cultures the hightest growth inhibition zones were observed on the six following cultures: ***Enterococcus faecalis***, ***Lactacoccus lactis*** concerning ***Staphylococcus aureus*** (d = 18 mm, 17 mm, respectively). ***Leuconostoc mesenteroides*** against ***Salmonella typhimurium (***15 mm); ***Enterococcus durans*** against ***Listeria inocula*** (13 mm); ***Lactacoccus lactis subsp. lactis*** against ***Basillus subtilis*** (9 mm); ***Lactobacillus fermentum*** against ***Pseudomonos aeruginosa*** (8 mm). Other strains showed medium or small inhibition zones less than 6 mm.

CONCLUSION

Obtained results show that studied wild strains of traditional fermented milk products could be used as new probiotic microorganisms with high antagonistic activity.