# ANTAGONISTIC ACTIVITY OF PROBIOTICS FROM CULTURED MILK DRINKS ON PATHOGENS

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## ABSTRACT

Antagonistic activity of different probiotic strains against pathogens may be different. Thus, this study was aimed to study the inhibitory efficiency of probiotic strains in different cultured milk drinks on *B. cereus* and *Salmonella* species. Antagonistic activity of probiotic strains was investigated by agar well diffusion assay and *in vitro* antagonistic activity test. In this study, five commercial cultured milk drinks (Sample V, Sample W, Sample X, Sample Y and Sample Z) were examined. The total viable cells in five samples were enumerated by spread plate on MRS agar. Samples V, X and Y that contained at least 6 $Log_{10}$ CFU/ mL of viable cells were subjected to agar well diffusion assay and *in vitro* antagonistic activity. Sample V, X and Y inhibited the growth of *B. cereus* and *Salmonella* species. In agar well diffusion assay, Sample X showed inhibition zone of 12.50 ± 0.50mm against *B. cereus* and inhibition zone of 12.00 ± 0.00mm against *Salmonella* species. Sample V showed inhibition zones of 11.00 ± 0.00mm and 11.50 ± 0.50mm against *B. cereus* and *Salmonella* species respectively. Sample Y showed inhibition zones of 10.00 ± 0.00mm and 10.50 ± 0.50mm against *B. cereus* and *Salmonella* species respectively. In agar well diffusion assay, probiotics in Sample X inhibited *B. cereus* and *Salmonella* species most effectively among Sample V, X and Y. For *in vitro* antagonistic activity test, suspensions of cultures were removed and plated on selective agars at 0 hour, 3 hour, 6 hour, 9 hour and 24 hour. The viable cells of probiotics and pathogens were enumerated. The viable cells of *B. cereus* and *Salmonella* species reduced 2.87 $Log_{10}$ CFU/ mL and 3.27 $Log_{10}$ CFU/ mL respectively after 24 hours of incubation with Sample Y. Sample X reduced 1.79 $Log_{10}$ CFU/ mL and 2.21 $Log_{10}$ CFU/ mL of *B. cereus* and *Salmonella* species respectively after 24 hours of incubation. Sample V reduced 2.21 $Log_{10}$ CFU/ mL and 2.04 $Log_{10}$ CFU/ mL of *B. cereus* and *Salmonella* species respectively after 24 hours of incubation. Probiotic strain in Sample Y inhibited *B. cereus* most effectively followed by Sample V and Sample X. Sample Y inhibited *Salmonella* species most effectively followed by Sample X and Sample V. Future research should be carry out to determine the inhibitory mechanisms and antimicrobial molecules produced by the probiotics that inhibit the growth of pathogens.