Screening of *Lactobacilli* spp. as Substitute for Antibiotics against Porcine Diseases by Relative Performance Index Verification

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Abstract

Lactobacilli are widely used as probiotics and feed additives in domestic animals. Major factors for verification of probiotics are cell growth and antimicrobial activities We isolated 108 lactobacillus strains from human being and animals, swabbed samples were applied on Rogasa agar plates to select the most predominant lactobacilli in each sample. Among 108 strains, Some of them showed antimicrobial activity against *Bordetella bronchiceptica, E. coli, Listeria monocytogenes,* and *Staphylococcus aureus.* In order to rank strains based on both antimicrobial activities and growth kinetics, when grown in liquid culture, relative performance indices were calculated for each strain based on each attribute($RPI_{antimicrobial}$ and $RPI_{kinetics}$). Each strains's overall RPI was calculated by averaging the $RPI_{antimicrobial}$ and $RPI_{kinetics}$ values. Overall RPIs were then used in order to objectively rank the strains.

In this study, Antagonistic microbes were selected in respect to cell growth and antimicrobial activities which were represented by relative performance index. we selected 5 *lactobacilli,* designated as 213, 261, 230, 79, 265, and they showed commercial potentials as probiotics against *Bordetella bronchiceptica, E. coli, Listeria monocytogenes,* and *Staphylococcus aureus.*

References

1. Schisler, D. A. and P. J. Slininger. Microbial selection strategies that enhance the likelihood of developing commercial biological control products(1997), *J. Ind. Microbiol. Biotechnol.,* 19: 172-179.
2. Hyun-Ah Kim, J-Y Cho, and Y-H Khang, Isolation and Characterization of an Animal Probiotics(2001), *Journal of Resource Development,* 20(1): 65~69.