

Antimicrobial activity of fermented industrial soybean waste extracts against food spoilers and foodborne pathogens

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Abstract: The spoilage of food caused by the microorganism affects food safety and consider as important problem in food industry. Control of microbial growth with chemical preservatives have negative effect to consumers' health. Bio-preservatives, for example extract of fermented soybean meal, are improved antimicrobial activity by fermentation process. Therefore, this study aimed to study the antimicrobial properties of seven fermented soybean meal extracts including B001, B010G, LY4/9, LY4/11, LY7/6, LY9/5, and PB5/6 by agar well and diffusion assays against the following microorganisms: *Bacillus cereus* TISTR747, *Escherichia coli* TISTR117, *Micrococcus luteus* TISTR1918, *Pseudomonas aeruginosa* TISTR1287, *Salmonella enterica* TISTR1469, *Staphylococcus aureus* TISTR746, *Vibrio parahaemolyticus*, *Saccharomyces cerevisiae* wild-type BY4742 and the mutant strain Δ pdr5. Bactericidal activity was observed in the PB5/6 and LY7/6 extracts against *E. coli* TISTR117 and *M. luteus* TISTR1918, respectively. The LY7/6 extract inhibited *S. enterica* TISTR1469 and *V. parahaemolyticus* at concentration 100 mg/ml with bacteriostatic activity. In summary, the fermented soybean meal extracts LY7/6 and PB5/6 were effective inhibit food spoilage microorganisms suggesting potential application as bio-preservatives for foods.

Keywords: Antimicrobial properties, Bio-preservatives, Food spoilage, Fermentation, Fermented soybean meal



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