

Industrial and Food Microbiology and Biotechnology

P-218 - SCREENING OF BACTERIOCINOGENIC LACTIC ACID BACTERIA CULTURES AND THEIR CHARACTERIZATION AS POTENTIAL PROBIOTICS

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Background

Ingestion of probiotic lactic acid bacteria (LAB) has been pointed out to confer a range of health benefits, including the immune system stimulation, reduction of infectious illness, among others. Food products containing probiotics should follow the guidelines established by FAO/WHO (2001). In general, probiotics have to be harmless to the host, they cannot be pathogenic, mutagenic or carcinogenic, allergenic or provoke any type of adverse reactions. The aim of this study was to select different bacteriocinogenic LAB isolated from different food products and study some of their probiotic characteristics in terms of safety, functional and physiological properties.

Method

Two hundred and eighty LAB isolates were screened for the antimicrobial activity against several microorganisms. The bacteriocinogenic LAB cultures were identified by 16S rRNA. The presence of some virulence factors, antibiotic resistances, resistance to simulated gastrointestinal tract conditions and ability to adhere to human colon adenocarcinoma cell lines Caco-2 were investigated.

Results & Conclusions

From the screening of antimicrobial activity, only seven out of the 280 LAB isolates were selected due to bacteriocin production. Six *Pediococcus pentosaceus* and one *Lactobacillus plantarum* were identified by 16S rRNA gene sequence analysis. None of the isolates showed the presence of virulence factors and none antibiotic resistances were detected. With the exception of *L. plantarum* R23, all the isolates were not inhibited through the simulated gastrointestinal tract conditions. After the simulated gastrointestinal tract passage, only *P. pentosaceus* CFF4 was able to adhere to Caco-2 cells. Even though additional studies should be performed, *P. pentosaceus* CFF4 seems to be a potential probiotic candidate.

References & Acknowledgments

Food and Agricultural Organization of the United Nations and World Health Organization (2001) Health and nutritional properties of probiotics in food including powder milk with live lactic acid bacteria. World Health Organization, http://www.who.int/foodsafety/publications/fs_management/en/probiotics.pdf (Accessed 20 May 2017).

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