

# MICROBIOTEC 19

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## BOOK OF ABSTRACTS

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## I10. Industrial and Food Microbiology and Biotechnology

### P402. Probiotic properties of lactic acid bacteria isolated from fermented foods

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Probiotic microorganisms are mainly ingested by the consumption of fermented foods. In general, for commercial purposes, and depending on the product, potential probiotics that are species and strain dependent should meet a number of requirements, as being safe, functional, beneficial and with technological and physiological properties. The aim of this study was to evaluate the probiotic potential of three lactic acid bacteria isolated from different fermented products.

Two isolates of *Enterococcus faecium* and one of *Leuconostoc lactis* were screened for the presence of virulence factors, virulence genes, antibiotic resistances, resistance to simulated gastrointestinal tract conditions in different food matrices and ability to adhere to human colon adenocarcinoma cell lines Caco-2. Only *L. lactis* was considered safe and selected for further tests since i) did not show any of the virulence factors tested (presence of haemolysis, production of hydrolytic enzymes Dnase and gelatinase and production of biogenic amines) as well as ii) any virulence gene with exception of *asa1* gene (aggregation substance protein), and iii) it was also susceptible to all antibiotics tested. *L. lactis* was able to resist during 4h in the presence of bile salts, but cells in acidic condition (pH 2.5) were reduced approximately 2 log cycles either in the presence or absence of pepsin. The sensitivity of *L. lactis* to acidic conditions led to the inability to survive through simulated gastrointestinal tract conditions. However, when incorporated into a complex food matrix only a reduction of approximately 2 log cycles occurred. *L. lactis* was also able to adhere in vitro to human colon adenocarcinoma cell lines Caco-2.

In conclusion, even though in vivo studies should be performed, *L. lactis* isolate seems to be a potential probiotic to be used in the food industry.