ment with bacteria from the proximal colon (PC) and distal colon (DC) compartments of Simulator of Human Intestinal Microbial Ecosystem (SHIME®). Fermenter samples were collected to measure effects on human microbiota composition and diversity as well as metabolite production. Pectin and inulin fermentation resulted in distinct metabolic profiles in the PC and DC. Inulin yielded higher concentrations of SCFAs than the pectin after 24 h fermentation. The relative concentration of indole derivatives varied depending on the fiber used, with higher concentrations of indole-3-acetic acid and indole-3-aldehyde for pectin, and a higher concentration of indole-3-propionic acid for inulin. When PC and DC were supplied with the same amount and type of fibers, microbiota in the DC produced more SCFAs than the PC. Indole derivatives were largely produced in the DC. Fermentation with pectin or inulin suppressed microbiota catabolism of tryptophan in the PC. Taken together, our results suggest that the type of fiber must be considered in the formulation of functional foods for intestinal health benefits.

INVESTIGATING THE SUSCEPTIBILITY OF THE NEXT GENERATION PROBIOTIC *FAECALIBACTERIUM PRAUSNITZII* UNDER STRESS CONDITIONS

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OBJECTIVE: *Faecalibacterium prausnitzii* is a multi-skilled intestinal bacterium proposed as a next generation probiotic. However, detailed information addressing the safety of this novel probiotic (in terms of antimicrobial susceptibility) and its technological fitness is still lacking. These data are important when developing probiotic products. This work aimed to evaluate *F. prausnitzii* DSM17677 susceptibility when exposed to selected antimicrobials, oxygen, acidic pH and bile.
METHODS: antimicrobial susceptibility of *F. prausnitzii* DSM17677 to ampicillin, vancomycin, gentamicin, kanamycin, streptomycin, erythromycin, clindamycin, tetracycline and chloramphenicol was assessed following European Food Safety Authority guideline. *Faecalibacterium prausnitzii* DSM17677 cultures were exposed to: 1) ambient air up to 5-minutes; 2) acidic pH (3 and 5) during 2-hours; 3) bile concentrations (0.1, 0.25 and 0.5 %) up to 3-hours. Viability was determined by colony-forming units plating (CFU) at defined time-points.
RESULTS: *Faecalibacterium prausnitzii* DSM17677 was susceptible to vancomycin, clindamycin, tetracycline and chloramphenicol. Moreover, this strain exhibited high viability reductions (> 4 log CFU/ml) after 1-minute of aerobic exposure of inoculated plates, and after 1-hour exposure to pH 3 and in all bile concentrations tested. However, this strain tolerated well the exposure to pH 5 for 2-hours.
CONCLUSIONS: given high *F. prausnitzii* DSM17677 sensitivity to aerobic atmosphere, pH 3 and bile, our data revealed the need to develop delivery systems able to promote the viability and stability of this bacterium when subject to such environmental stresses, envisaging its future application as a probiotic strain. Furthermore, this work contributes to the establishment of *F. prausnitzii* DSM17677 antimicrobial susceptibility profile.

INVESTIGASTIONS OF THE POTENTIAL MECHANISM OF ACTION OF A MULTI-STRAIN PROBIOTIC COMPOSITION AGAINST URO-GENITAL PATHOGENS BY *EX-VIVO* STUDIES

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OBJECTIVE: the urogenital microbiota is dominated by lactobacilli able to counteract pathogens growth. Vaginal infections occur when the urogenital microbiota is unbalanced. The aim of the study was to evaluate the efficacy of SynBalance® Femme, a product containing *L. plantarum* PBS067, *B. animalis* subsp. *lactis* BL050 and *L. rhamnosus* LRH020, to inhibit the adhesion and the growth of pathogens involved in uro-vaginal infections.
METHODS: the antimicrobial and preventive effects of the three probiotic strains and their combination SynBalance® Femme, have been evaluated on a reconstructed bladder epithelium (HBE), infected with *E. coli* and on a reconstructed vaginal human epithelium (VHE, A431 modified) infected with *C. glabrata and C. albicans*, *G. vaginalis*, *N. gonorrheae* and *T. vaginalis*, respectively. In addition, the effects on the viability and the integrity of reconstructed tissues after TEER treatment were also assessed.
RESULTS: a strong antimicrobial activity was observed for *B. lactis* BL050, *L. plantarum* PBS067 and *L. rhamnosus* LRH020, on HBE previously colonized by *E. coli*. For *L. rhamnosus* LRH020 a preventive activity was also observed by SEM analysis. TEER results showed that none of the strains have negatively influenced the integrity of HBE.
On the vaginal epithelium, SynBalance® Femme and its corresponding strains showed a full inhibition of all tested pathogens, together with a strong reduction of their adhesiveness. The prevention model demonstrated a very strong effect as well.
CONCLUSIONS: these results underling the potential mechanism of action of SynBalance® Femme and their single strains in the prevention and treatment of several urogenital infections.

PREBIOTIC LACTULOSE AS EFFICACIOUS MICROBIOTA AND METABOLITE MODULATOR IN CIRRHOSIS ENVIRONMENT

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OBJECTIVE: gut microbiota has a fundamental role in the pathogenesis of liver cirrhosis as well as their complications as in the case of hepatic encephalopathy (HE). Current HE clinical treatment is mainly based on manipulating the gut microbiota and ammonia production/absorption using prebiotic lactulose, antibiotic rifaximin and probiotic VSL#3.