INFLUENCE OF POLYPHENOLS ON ENTEROPATHOGENIC BACTERIA AND PROBIOTICS

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Polyphenols are well-known antioxidants with protective effects against various diseases such as cancer, and other degenerative conditions associated with inflammation besides the antimicrobial activity. The average consumption of polyphenols is about 1 g per day, the main sources being fruits, tea, cocoa and coffee, and to a lesser extent, vegetables, cereals and legume seeds. Their intestinal absorption is highly variable, often slow and largely incomplete. Therefore a large proportion of dietary polyphenols remains unabsorbed in the gut lumen. In order to evaluate the minimal inhibitory concentration (MIC), the method of broth microdilution (CLSI, 2005) was used to assess the polyphenol activity against the enteropathogenic bacteria: *Escherichia coli* (ATCC 11775), *Staphylococcus aureus* (ATCC 6538), *Salmonella typhimurium* (ATCC 14028), *Pseudomonas aeruginosa* (ATCC 13388) and *Enterococcus faecium* (CCT 5079), and probiotic strains *Lactobacillus rhamnosus* (ATCC 7469) and *Bifidobacterium animalis subsp. Lactis* Bb12®. The twelve polyphenol standards used were: cyanidin, delphinidin, L(+)-ascorbic acid, protocatechuic acid, (+)-catechin, kaempferol, quercetin, gallic acid, caffeic acid, rutin, chrysin and naringin in a final concentration of 1000 µg/mL. The amount of microorganisms incubated was 10⁵ UFC/mL and TTC (2,3,5 – triphenyltetrazolium chloride) used as dye for growth detection. The MIC results were: *E. coli* > 125 µg/mL for both gallic acid and delphinidin, and for *S. aureus* > 75 µg/mL for gallic acid, and 125 µg/mL for delphinidin. No MIC was observed for the others pathogenic strains in the studied range for all compounds (> 1000 µg/mL) and for the probiotic strains no inhibitory effect was observed, as desired.