Growth of probiotic bacteria in trypticase phytone yeast medium supplemented with crude polysaccharides from Ganoderma lucidum.

ABSTRACT

Ganoderma lucidum is a fungus usually used in traditional Chinese medicine. The high value of G. lucidum is related to its polysaccharides content. Crude polysaccharides from G. lucidum (GLCP) were obtained using hot water extraction method. There is about 0.57 g of GLCP in 1 g crude of G. lucidum. The prebiotic potential of GLCP was tested against probiotic bacteria namely: Bifidobacterium longum BB536, Bifidobacterium pseudocatenulatum G4, Lactobacillus acidophilus and Lactobacillus casei Shirota. The prebiotic potentials were studied in 10 mL basal Trypticase Phytone Yeast (abbreviated as bTPY) medium (without glucose) supplemented with various concentrations of GLCP (abbreviated as bTPYglcp) (0.5%, 1.0%, 1.5% and 2.0%). bTPY medium supplemented with glucose (abbreviated as bTPYglu) and inulin (abbreviated bTPYinu) were used as comparison. Viable cell counts of the bacteria and the pH of the medium were determined during anaerobic incubation period of 0 h, 12 h, 24 h and 48 h at 37 °C. In the presence of carbohydrate source, cultures showed various degree of growth increment. With regards to the growth supporting property: bTPYglu, bTPYglu+glcp, bTPYglcp and bTPYinu were ranked first, second, third and fourth respectively. Interestingly, in bTPYglcp medium, bacterial growth increased with increasing GLCP concentrations when incubated until 24 h. B. longum BB536 was ranked first (10.53 log cfu/mL) in term of their growth in this medium. Growth of B. pseudocatenulatum G4 was ranked second with 10.40 log cfu/mL. This study shows that, GLCP could support the growth of the bacteria tested.

Keyword: Probiotic; Bifidobacteria; Ganoderma lucidum.