Prebiotics metabolism by gut-isolated probiotics

ABSTRACT

There are numerous species of bacteria resides in the lumen of human colon. The word ‘colon’, resembles colony or the colonization of microbiota of which plays an important role in the fermentation of prebiotics. The standpoint of prebiotic nowadays is well reported for attenuating gut dysbiosis in many clinical studies tested on animals and human. However, because of the huge amount of gut microbiome, the attempt to connect the dots between bacterial population and the host are not plainly discernible. Thus, a need to analyse recent research on the pathways of prebiotic metabolism adopted by commonly studied probiotics i.e. Bifidobacteria and Lactobacillus. Several different substrate-dependent gene expressions are induced to break down oligosaccharide molecules shown by those probiotics. The hydrolysis can occur either by membrane bound (extracellular) or cytoplasmic (intracellular) enzyme of the enteric bacteria. Therefore, this review narrates several prebiotic metabolisms occur during gut fermentation, and metabolite production i.e. organic acids conversion.

Keyword: Colonic fermentation; Oligosaccharide; Prebiotic; Short chain fatty acids; Probiotic