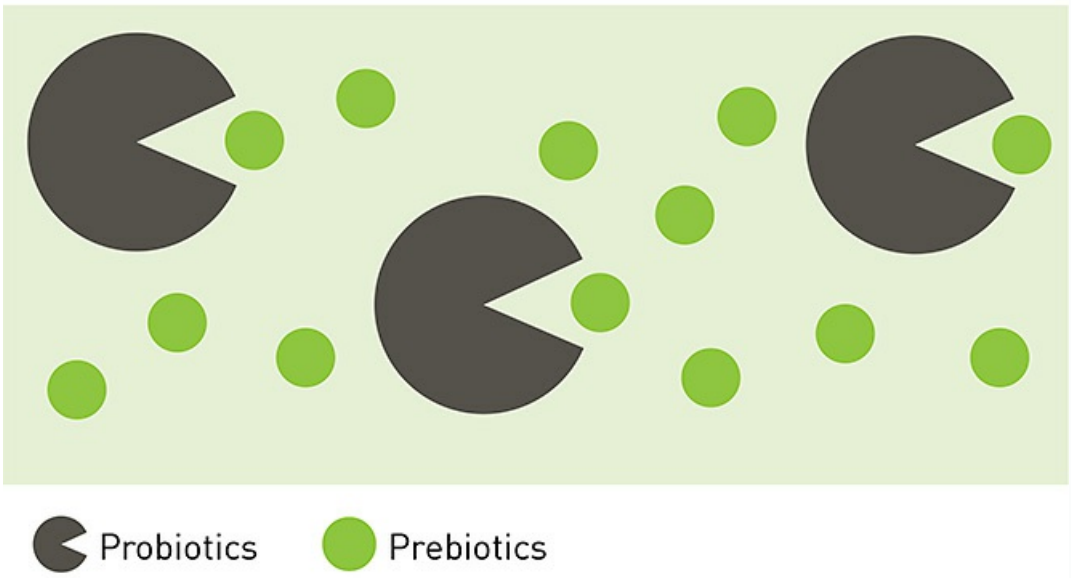
Prebiotics and Probiotics



Editorial

Intestinal flora encompasses at least 500 different types of bacteria living in symbiosis with their host. The dominant microflora in the stomach is Gram-positive bacteria; while in the distal small intestine and the colon is Gram-negative type. The most important intestinal bacteria are bacteroides, bifidobacteria, Enterobacteraceae, lactobacilli, Gram-positive cocci, Clostridium species and eubacteria. Bacterial population in intestinal contents increase in a distal direction in the gastro-intestinal tract from 103–104/mL in the stomach to 106– 107/mL in the distal ileum .and 1011–1012/mL in the colon

The composition of the intestinal flora is fairly constant within an individual in spite of considerable intra-individual variation in the composition of the diet. However, a variety of conditions may disturb the intestinal flora and induce colonization of the intestinal by undesirable bacteria. Such conditions include treatment with antibiotics, food contamination (e.g., by Salmonella spp., Campylobacter spp. or Escherichia coli), viral infections, stress, shortage of gastric juice and diminished intestinal motility. Bacteriotherapy is an alternative and promising way to .combat infections by using harmless bacteria to displace pathogenic microorganism

The stable composition of micro flora is one of the factors responsible for a balanced ecosystem and good health. The profile and the activity of . intestinal flora are influenced by some dietary factors which are nothing but prebiotics, probiotics and symbiotics

Prebiotics are non-digestible food ingredients which beneficially affect the host by selectively stimulating the growth of and/or activating the metabolism of one or a limited number of health promoting bacteria in the intestinal tract, thus improving the host's intestinal balance. All prebiotics to date have been carbohydrates, ranging in size from small sugar alcohols and disaccharides, to oligosaccharides and large :polysaccharides. The defining criteria of prebiotics are

.A prebiotic should neither be hydrolyzed nor absorbed in the upper part of the gastrointestinal tract (1)

.It should be a selective substrate for one or more potentially beneficial commercial bacteria in the large intestine (2)

.Alter the colonic microenvironment toward a healthier composition (3)

.Induce luminal or systemic effects that are advantageous to the host (4)

Probiotic," derived from the Greek, meaning "for life" which evolved to apply to those bacteria that "contribute to intestinal balance." Probiotic" food is defined as a preparation of or a product containing viable, defined microorganisms in sufficient numbers, which alter the microflora by implantation or colonization in a compartment of the host and by that exert beneficial health effects on the host . The probiotic microorganisms should be nonpathogenic in nature; resistant to destruction during processing and by gastric acid and bile and able to adhere to intestinal epithelial tissue, colonize in the gastrointestinal tract, produce antimicrobialsubstances, modulate immune responses and influence human .metabolic activities

It has been suggested that a combination of prebiotics and probiotics, the so-called symbiotics might be more efficient than the individual components in the colon. Symbiotic is defined as "a mixture of prebiotics and probiotics that beneficially effects the host by improving the survival and implantation of live microbial dietary supplements in the gastrointestinal tract by selectively stimulating the growth and/or by activating the metabolism of one or a limited number of health-promoting bacteria, and thus improving the health of the host". The use of symbiotics as functional food ingredients is a new and developing area . Most common symbiotic foods found in the market are milk based; soy .based and may also include certain fermented vegetables