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The nature and manufacturing of probiotics/prebiotics for gastrointestinal health

Probiotics are live bacteria such as bifidobacteria and lactic acid bacteria that are beneficial for gastrointestinal health. These probiotics bacteria intended to be colonized in the large intestine (colon) and reduce the effect of harmful and pathogenic bacteria in the digestive system, suggesting that these probiotics bacteria can prevent gastrointestinal tract from infection diseases and reduce colon inflammation. It is also assumed that probiotics bacteria strengthen the immune system. Prebiotics are non-digestible carbohydrates by digestive enzymes in small intestine and are fermentable when reached the clone. This fermentation process of prebiotics enhances the growth of beneficial bacteria (probiotics) in the colon. There are two categories of prebiotics: Prebiotics fibers that are naturally occurred in whole grain, broccoli, asparagus, radish, cabbage, etc. and prebiotics oligosaccharides such as Fracto-Oligosaccharide (FOX), Galacto-Oligosaccharides (GOS), Xylo-Oligisaccharides (XOS), etc. These prebiotics oligosaccharides are manufactured enzymatically from plant sources. Synbiotics concept was first introduced as a mixture of probiotics and prebiotics that beneficially affect the gastrointestinal tract of the host (human or animals). This synbiotic formulation that contains both probiotics and prebiotics are manufactured by using microencapsulation technology and are marketed in the form of capsules or tablets. Manufacturing of probiotics/prebiotics and the impact of this synbiotics relationship on colon health will be highlighted.

Biography

Osama Ibrahim is a highly experienced, principal research scientist with particular expertise in the field of microbiology, molecular biology, food safety, and bio-processing for both pharmaceutical and food ingredients. He is knowledgeable in microbial screening /culture improvement; molecular biology and fermentation research for antibiotics, enzymes, therapeutic proteins, organic acids and food flavors, biochemistry for metabolic pathways and enzymes kinetics, enzymes immobilization, bio-conversion, and analytical biochemistry. He was external research liaison for Kraft Foods with Universities for research projects related to molecular biology and microbial screening and holds three bioprocessing patents. In January 2005, he accepted an early retirement offer from Kraft Foods and in the same year he formed his own biotechnology company providing technical and marketing consultation for new start up biotechnology and food companies.

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