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The nature of prebiotics and the impact of prebiotics/probiotics on gut health

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Prebiotics are the fermentable, non-digestible carbohydrates that stimulate as nutrients the growth and the activity of beneficial bacteria (probiotics) in the digestive system. There are two prebiotics categories: Prebiotics fibers that are naturally occurring in whole grain, broccoli, asparagus, radish, cabbage, etc, and Prebiotics oligosaccharides such as Fracto-oligosaccharide (FOX), Galacto-oligosaccharides (GOS), Xylo-oligosaccharides (XOS), polydextrine etc. These prebiotic oligosaccharides are increasingly added to foods for their health benefits and are not labeled as fibers in the United States. Prebiotic oligosaccharides are synthetically manufactured or extracted from plants in pure forms. Probiotics are the beneficial bacteria in the colon such as *Bifidobacterium* and lactic acid bacteria. These probiotics bacteria assist in the maintenance of the natural balance of micro flora in the digestive system to reduce the effect of the harmful and pathogenic bacteria in the digestive system, suggesting that these probiotics bacteria can prevent gastrointestinal tract from infection diseases and reduce gut inflammation. It is also, assumed that probiotics bacteria strengthen the immune system. Synbiotics are products that contain both prebiotics and probiotics. These products have the non-digestible carbohydrates source (prebiotics) and the good bacteria (probiotics). Manufacturing of the major prebiotics oligosaccharides and the impact of synbiotics on gut health will be highlighted in this presentation.

Biography

Osama O 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, 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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