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Chemicals structure, properties, regulations and applications of non-nutritive high intensity sweeteners

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High Intense Sweeteners (HIS) are commonly used as a sugar substitutes or sugar alternatives and provide sweet without calories. HIS are in high demands due to its multiple advantages including assisting people in losing weight or avoiding obesity and assisting diabetics to control their blood sugar level. The first known intense-sweetener is Saccharine that was discovered in the year 1878. Since then scientists discovered several other intensive sweeteners that are sweeter than sucrose with zero calorie. Some discovered sweeteners are plants extract (Steviol glycosides and Mogrosides), semi-synthetic peptides (Aspartame and Neotame) and synthetic chemicals (Saccharine, Sucralose, Acesulfame-K and Cyclamate). These high intensive sweeteners have been approved as safe for applications in foods, beverages, dietary supplements and pharmaceuticals products by Food and Drug Administration (FDA) in United States and by other similar agencies in other countries. The levels of these non-nutritive high intensive sweeteners used in foods, beverages, dietary supplements and pharmaceutical products are based on the approved daily intake (ADI) by FDA and by other safety authorities worldwide. This ADI level is 100 fold lower than the safe dose demonstrated in laboratory studies. It is estimated that the global demand of HIS is exceeding 9.0 billion dollars and growing. The only HIS that is declining in global market is the old discovered sweetener Saccharine.

Biography

Osama O Ibrahim is a highly-experienced Principal Research Scientist with particular expertise in the field of microbiology, molecular biology, food safety and bioprocessing 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, bioconversion 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 startup biotechnology and food companies. He has received his BS in Biochemistry with honor and two MS degrees in Microbial physiology/Fermentation and in Applied Microbiology. He has received his PhD in Basic Medical Science (Microbiology, Immunology and Molecular biology) from New York Medical College. Since 1979, he is a Member of American Chemical Society, American Society of Microbiology and Society of Industrial Microbiology.

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