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Snehasis Jana

Trivedi Science Research Laboratory Pvt. Ltd., India

Dietary polyphenols (DPPs) for the management of obesity

Obesity is one of the major health problems worldwide and it is a risk factor for several chronic disorders. Plenty of evidences are available in the literature that obesity is due to the excess dietary fat intake or an imbalance between the intake and expenditure of energy. Overweight and obese patients may develop mild to moderate grade of chronic inflammation that leads to the development of insulin resistance. Systemic inflammation is shown in a number of human and mouse models of obesity, as observed with increased plasma levels of inflammatory cytokines such as tumor necrosis factor- α (TNF- α), interleukin-6 (IL-6) and monocyte chemo-attractant protein-1 (MCP-1). The development of obesity is caused by nutritional deficiency from eating high energy foods with poor nutrient content. Therefore, diet with a higher nutrient density reduces their weight and improves obesity-related inflammatory disorders. This indicates that obesity-related pathologies can be prevented or improved by the intake of food containing components that can control inflammation in obese adipose tissues infiltrated with macrophages. Thousands of dietary polyphenols (DPPs) have been identified in vegetables, fruits, whole grains, legumes and other plant sources. DPPs are classified as phenolic acids and flavonoids. There has been tremendous interest on the health potentials of DPPs. DPPs consumption imparts diverse health benefits such as antioxidant, inhibiting free radicals and reactive oxygen species (ROS), anti-cancer, anti-inflammatory and beneficial against osteoporosis, neurodegenerative disease, cardiovascular disease, diabetes mellitus and other metabolic disorders. Existing evidences show that DPPs are effective and promote health via multiple signaling pathways such as lipid anabolism/catabolism pathways and apoptotic pathways. However, for food applications, assessment of DPP extracts may be suitable due to synergistic action of bioactives and are relatively safe.

Biography

Snehasis Jana has completed his PhD from Indian Institute of Technology-New Delhi, India. He is the Senior General Manager at Trivedi Science Research Laboratory Pvt. Ltd., Bhopal, India. He has more than 12 years of Biopharmaceuticals and Nutraceuticals Industrial Research and Development work experience in different fields such as *in vitro* and *in vivo* preclinical and clinical pharmacology/DMPK-Toxicology and clinical trials to evaluate various types of nutraceuticals, herbal medicines and pharmaceuticals including small molecules and protein therapeutics for different therapeutic projects. He has published more than 30 papers in reputed peer reviewed journals.

jana@trivedisrl.com

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