

**Bioactives in overweight and obesity**

*Dr Vijay Kumar Sehgal, Associate Professor, GMC, Patiala*

Obesity has assumed endemic proportions worldwide among all ages and both sexes. Overweight and obesity have major impact on global health. Their prevalence has rapidly increased in all the countries in past few decades, which has led to a dramatic increase in the risk of cardiovascular diseases, type-2 DM, and metabolic syndrome. [1] Over the last two decades numerous strategies, both non-pharmacological and pharmacological have been developed in order to achieve long term body weight reduction and improve risk. Various drugs such as Orlistat, Sibutramine etc have been evaluated for their effect on body weight. Data from various studies suggested that people given Orlistat in addition to lifestyle modifications such as diet and exercise, lose body weight significantly than those not taking the drug over the course of a year. However, Orlistat is notorious for its gastrointestinal side effects, which can include Steatorrhoea. [2] Pharmacoepidermalogical studies seem to indicate that attrition rates in clinical practice are higher (64%-77%) with Orlistat and major causes of cessation of treatment are high costs and side effects. Orlistat is a potential cause of kidney injury. [3]

Sibutramine is an oral anorexiant. Until 2010 it was neglected and prescribed as an adjunct in the treatment of obesity along with diet and exercise. It has been associated with cardiovascular events and status and has been withdrawn from the market in several countries. [4]

With an alarming size in the prevalence of obesity and metabolic syndrome, the use of Bioactives such as

dietary supplements, to promote weight loss has been increasing due to limited availability of safe antiobesity drugs. [5]

Bioactive compounds are essential and non-essential compounds (eg: vitamins or polyphenols) that occur in nature, are part of the food chain and can be shown to have an effect on human health, appetite suppression, lipid metabolism regulation and increase of energy expenditure are the main mechanisms by which anti-obesity effects are exerted. Plants represent the most studied natural sources of anti-obesity bioactives. Moreover probiotics (bacteria which bestow health benefit) such as strains of Bifidobacteria and Lactobacillus families and certain Prebiotics (non-viable food components that confers a health benefit on the host associated with modulation of the microbiota effects), such as Insulin-type fructans, have also shown capability to combat obesity. Finally compound from animal sources, in particular bioactive peptides desired from milk-derived Whey and Casein protein digestion, high dietary Calcium and Omega-3,5 polyunsaturated fatty acids (n-3 PUFA) present in fish oils, have also shown potential antiobesity effects. [6]

In vitro and In vivo studies showed that(-) hydroxycitric acid (HCA) the principal acid of Indian fruit Garcinia Cambogia decreases body weight gain. Hoodia Cordonii is an edible cactus known for its appetite suppressing property. Epigallocatechin Gallate, the most abundant Catechin in green tea, has received the most attention as a potential anti-obesogenic effect. [7]

In the current scenario of high prevalence of obesity, its detrimental effects on human health and deficiency of safe anti-obesity drugs, the combination of bioactive ingredients may be safe and effective approach to manage obesity and overweight. Various studies showed encouraging results, conducted on the combination of bioactive ingredients. Results of various studies showed significant decrease in the body weight in overweight and obese. Role of bioactives in overweight and obese need to be further assessed. Defining the hallmark pharmacological effects of bioactives in depth will help build a road map for potential research in anti obesity functional foods and will help ultimately to have impact on human health and longevity.

### References

1. Critical Reviews in Food Science and Nutrition 2013;53:929-42.
2. Padwal R, Li SK, Lau DC. Long-term pharmacocapsule for obesity and overweight. Cochrane Database Syst Rev(3):CD004094.
3. Weir MA, Beyea MM, Gomes T Juurlink DN, Mamdani M, Blake PG, Wald R, Garg AX. Orlistat and acute kidney injury: an analysis of 953 patients. Arch Intern Med 2011;171(7):703-4.
4. James WP, Caterson ID, Coutinho W, Finer N, Van Gaal LF, Maggioni AP, et al. Effect of Sibutramine on cardiovascular outcomes in overweight and obese subjects. New England Journal of Medicine 2010;363(10):905-17.
5. Torgerson JS, Hauptman J, Boldrin MN. Xenical in the prevention of diabetes in obese subjects (XENDOS) study: a randomized study of orlistat as an adjunct to lifestyle changes for the prevention of type 2 diabetes in obese patients. Diabetes Care 2004;27(1):155-61.
6. Torres-Fuentes C, Schellens H, Dinen TG, Cryan GF. A natural solution for obesity: bioactives for the prevention and treatment of weight gain. A review: Nutritional Neurosciences 2015 Feb; 18(2):49-65.
7. Boschmann M, Thielecke F. The effects of epigallocatechin-3-gallate on thermogenesis and fat oxidation in obese men: a pilot study. J Am Coll Nutr 2007;26(4):389S-95S.

Cite this article as: Kumar V. Bioactives in overweight and obesity. Int J Med and Dent Sci 2016;5(2):1114-1115.

Source of Support: Nil  
Conflict of Interest: No