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Consumption turmeric in diet protects against cancer causing environmental toxicants

Human populations are constantly exposed to environmental toxicants, tobacco smoking in the form of the cigarette, cigars, hookah, bidi etc., wood burning Some of this chemical are cancer-causing agents are highly mutagenic/genotoxic and carcinogenic. Turmeric is widely used in large quantities on a daily basis in and around the world. The active molecule of turmeric is curcumin, which imparts yellow color and large quantities (2-5%). With short-term mutagenic assay, turmeric extract and curcumin are nonmutagenic. We Have tested these compounds against well-known air pollutants, mutagenic/carcinogenic polycyclic aromatic hydrocarbons (PAHs), benzo(a)pyrene (BaP) and Dimethyl(a) benzanthracene (DMBA). Nontoxic doses of turmeric extracts and curcumin doses dependently decreased the mutagenicity of BaP and DMBA. The protective activities of these compounds were also confirmed by animal tumor models. Nitrite is a water pollutant that is a precursor of mutagenic/carcinogenic nitrosamines and nitrosamides. Amines/amides are present in vegetables and cured meat. Human stomach maintains acidic conditions, favors the chemical reaction of nitrite with amines/amides to form mutagenic/carcinogenic nitrosamines/amides. We mimic these conditions and have shown that turmeric and ginger their active principles dose-dependently block the formation of nitrosamines/amides. Further, the human efficacy of turmeric was confirmed in cigarette and bidi smokers. Consuming turmeric reduced excretion of mutagens in human smokers. Human consumption of turmeric may play an important role in reducing the harmful effects of environmental toxicants, thus reducing age-related human cancer and chronic degenerative diseases. India is the largest producer and consumer (80%) of turmeric. Even though certain areas of the country highly polluted, the cancer incidence is relatively lower.

Biography

Nagabhushan Moolky Toxicology & Nutrition Consultant, worked as a scientist for the last 35 years, was a Scientific Officer at Tata Cancer Institute, Bombay, India where he completed his Ph.D. and worked as a scientist in several Universities in the USA. He was the first one to show that some pf the spices (its principles) – Turmeric (Curcumin), Ginger (Gingerol, Shaogol and zingerone), Catechu (Catechin) and betel leaf (Hydroxychavicol) prevents genetic damage resulting in cancer formation caused by environmental and dietary chemicals. His research was recognized by more than 20 awards by the national and international organization including Young Scientist Award (Gold Medal) 1988 from ICMR, New Delhi, India and New Investigator Award 1989, American College of Nutrition, USA. He has published his research findings in peer-reviewed national and international scientific journals and also presented more than 150 abstracts in national and international scientific meetings. In 2004, he was invited to present his work at International conference on childhood leukemia, London. The presentation was covered by all major newspapers and news channels around the world including BBC, CNBC etc.

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