Exposure of food grade nanoparticles in Nutraceuticals and their potential implications on Human Health

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Nutraceuticals and bioactive compounds are currently a popular topic in scientific research and with the public as natural ways to help treat many ailments including inflammation, prevent or treat cancer, and as antioxidants. Unfortunately, many of these bioactive compounds have very low bioavailability and, therefore, fail to show any significant benefits in these areas. Nanotechnology involves the use of very small particles ranging in size from just a few nanometers (nm) to hundreds of nanometers. The nanoparticle life cycle begins with manufacturing, continues with transport and processing, transport of the finished product, consumption by humans or other living organisms, and ends with recycling or disposal of nanoparticles or the products in which they are present. It is important to understand the potential hazards of nanoparticles in the environment and in our food to avoid potential adverse effects. The research that is currently available does not specifically determine if the use of engineered nanoparticles is hazardous or beneficial to human health that has not stopped the food industry from actively incorporating such ingredients into their products. The way a nanoparticle behaves in a biological system depends on many different factors, mainly what type of nanoparticle the system is being exposed to. These particles vary in chemical structure, composition, and size; therefore, a reaction from one specific nanoparticle may be different from another. Very small particles have the ability of passing through the cellular barriers in the body and reaching multiple organs as well as accumulating in the body. Many consumers are unaware of the nanoparticles that may be in their foods that they are ingesting every day. This talk will focus on the food grade nanoparticles and related factors that impact human health.

Speaker Biography

Balunkeswar Nayak is an Associate Professor, Food Science and Human Nutrition in the School of Food & Agriculture, University of Maine, Orono, United States. He received his Ph.D. in Food Engineering from Washington State University, Pullman, WA. He has more than 16 years of experience on the food process engineering and nanotechnology on the safety, quality and functionality of health benefitting compounds in fruits, vegetables and grains. He has published his research in many reputed journals and is a scientific editor for the Journal of Food Processing and Technology and Trends in Post-harvest Technology. He has served in many scientific committees of IFT and ASABE.

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