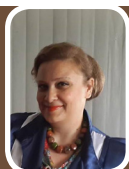


# World Congress on ADVANCED NUTRACEUTICALS AND FUNCTIONAL FOODS

July 15-16, 2019 | London, UK



## *Ozlem Tokusoglu*

*Manisa Celal Bayar University, Turkey*

*Dokuz Eylul University Technology Development Zone, Turkey*

### **Food by-products based functional food powders and nutraceuticals**

Functional foods are foods that include an ingredient that gives that food health-promoting properties over and above its usual nutritional value. Bioactive compounds potentially extractable from the aimed plant food by-products contain majorly phytochemicals, fibers, natural flavor constituents, sugars, polysaccharides, ethanol, and proteins and its derivatives. The massive by-product, often named as “pomace” or “waste”, is obtained by fruit or vegetable pressing and can include pulp, peels, seeds and, stones. Major food by-product derivatives from the drink industry (26%), followed by the dairy and ice cream industry (21.3%), the manufacturing and preservation of fruits and vegetables (14.8%), the production of grain and starch products (12.9%), the manufacturing, processing and preservation of meat products (8%), the production of vegetable and animal oils and fats (3.9%), the manufacturing and preservation of fish and fish products (0.4%).

The processing of fruits and vegetables results in high levels of waste materials including peels, seeds, stones, and oilseed meals. In the innovative technologies, new aspects regarding the utilizing of above-mentioned wastes as by-products for further exploitation on the manufacturing of high-value products, food additives or supplements with high nutritional value. Especially stone fruits including apple, pear, citrus fruits, grape, tomato, tropical fruits including mango, aggregate fruits including pomegranate, berry fruits, olive and coffee, red beet, artichoke, asparagus, celery, endive, chicory, cucumber, broccoli are important fruit and vegetable source that are given efficient by-products. By-products of fruit and vegetable as a sources of majorly phenolics and dietary fibre and minerals that have a wide range of action which includes antitumoral, antiviral, antibacterial, cardioprotective and antimutagenic activities.

The meat by-products contain wastes from breed animals, wastes from seafood, and wastes from dairy processing as thirdly. The recovered biomolecules and by-products can be used to produce functional foods or as adjuvants in food processing or in medicinal and pharmaceutical preparations. It is determined that many organ meats contain more Poly Unsaturated Fatty Acids (PUFAs) than lean tissue while brain, chitterlings, heart, kidney, liver and lungs contain lowest level of Mono Unsaturated Fatty Acids (MUFA) and the highest level of Polyunsaturated Fatty Acids (PUFA). Bioactive peptides generally include between 3-20 amino acid residues and various bioactive peptides have very healthy owing to their determined health benefits to the consumers like antihypertensive activity. Meanwhile collagen and gelatine are unique proteins and collagen is rich in non-polar amino acids (above 80%) containing glycine (Gly), alanine (Ala), valine (Val), proline (Pro) amino acids whereas gelatine generally contains glycine unites, proline and 4-hydroxyproline residues Antioxidant peptides anserine and carnosine are especially bioactive functional ingredient for functional food manufacturing process gained from meat wastes.

# World Congress on ADVANCED NUTRACEUTICALS AND FUNCTIONAL FOODS

July 15-16, 2019 | London, UK

It is reported that the major components of fish waste products are tongue, cheeks, stomach, liver from fish. These organs include protein bioactives as residual, bioactive lipid components (omega 3,6, DHA, EPA), fish skin, carotenoid bioactives. Chitinous materials from shellfish products, gut enzymes, flavor products, anti-freeze proteins from seafood blood are crucial. Astaxanthin (3,3-dihydroxy- $\beta,\beta$ -carotene-4,4-dione) from seafood by-products is a ketocarotenoid oxidized from  $\beta$ -carotene, that plays biological roles and have a number of special properties for food and medical applications due to their natural ketocarotenoid structure, and liposoluble property, besides has superior antioxidant characteristics and has biological functions as vitamin A precursor. It is stated that main by-products of dairy industry are whey, buttermilk, and sometimes skim milk. It is reported that whey protein hydrolysates enriched in free Amino Acids (AAs) and hydrophilic peptides could have been responsible for the rised insulinotropic response of BRIN-BD11 cells. In this context, the potential utilization of whey protein hydrolysates and peptides can be performed as natural complementary approaches in dietary intervention and food-drug therapies for type 2 diabetes management by inhibiting DPP IV activity and increasing the half-life of incretin hormones.

From the nutrition perspective of view, food by-product based functional food powder gaining and nutraceutical manufacturing generate the alternative technologies for healthy and safe bioactive constituent utilization.

## Biography

Ozlem Tokusoglu has completed her PhD at Ege University Engineering Faculty, Dept of Food Engineering at 2001. She is currently working as associate professor, Dr faculty member in Celal Bayar University Engineering Faculty Department of Food Engineering. She performed a visiting scholar at the Food Science and Nutrition Department /University of Florida, Gainesville-Florida-USA during 1999-2000 and as visiting professor at the School of Food Science, Washington State University, Pullman, Washington, USA during April-May 2010. She has published many papers in peer reviewed journals and serving as an editorial board member of selected journals. She published the scientific edited two international book entitled Fruit and Cereal Bioactives: Chemistry, Sources and Applications and entitled Improved Food Quality with Novel Food Processing by CRC Press, Taylor & Francis, USA Publisher and third book Food By-Product Based Functional Food Powders by CRC Press, too. She also published three national books entitled Cacao and Chocolate Science and Technology, Special Fruit Olive: Chemistry, Quality and Technology and Frying Oils Science and Technology. She organized and/or administered as Conference Chair at many conferences and congress in various parts of USA and Europe.

[tokusogluozlem@yahoo.com](mailto:tokusogluozlem@yahoo.com)