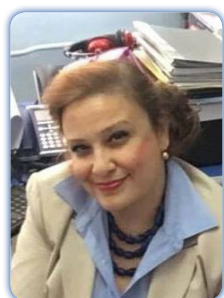


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### Food by-products based food powders for functional nutrition and as anticancer agents

Food by-products in the food industry is characterized by a high ratio of product specific waste not only does this mean that the generation of this waste is unavoidable, but also that the level and the kind of by-product which consists primarily of the organic residue of processed raw materials, can scarcely be changed if the finished product quality is to remain consistent. Using and disposal of the product specific waste is difficult owing to its inadequate biological stability, potential pathogenic structure, high water content, potential auto oxidation tendency and high amount of enzymatic activity. Food by-products or food industry shelf-stable co-products as liquid, pomace, or powder forms can be obtained from fruits, vegetables, meats, seafoods, milk and dairy, cereals, nuts, fats and oils processing. Those above-mentioned by-products may be evaluated as a source of dietary phytochemicals including phenolic antioxidants, carotenoids, bioactive other polyphenols, dietary fibers, as a source of proteins, peptides and aminoacids, may be evaluated as extruded products as a sources of collagen, gelatin, and as a sources of various food additive materials. However, some of the by-products can be utilized as compost for plants, can be used as animal feed and can be utilized as industrial materials. Epidemiological studies have pointed out that fruits and vegetable consumption imparts health benefits including certain types of cancer, reduced risk of coronary heart diseases. The health benefits of fruits and vegetables are majorly attributed to bioactive nutrients as phytochemicals, carotenoids, vitamins (ascorbic acid, tocopherol etc.), also to dietary fiber of these products. By-products of fruits and vegetables are sources of these healthy compounds and it has been considered that these are the highly desired constituents of by-products of fruits and vegetables. Seafood product processing discard account for about three-quarters of the total weight of catch. Seafood processing has also been used as a possible waste utilization. It is known that the major components of seafood discard products are tongue, cheeks, stomach, liver of fish, protein bioactives from residual fish, marine bioactive lipid components (omega 3,6, DHA,EPA), fish skin, carotenoid bioactives and chitinous materials from shellfish products, gut enzymes, flavor products, anti-freeze proteins from seafood blood. Nowadays, the potential utilization of the above-mentioned major components has been the focus of attention. Chemoprevention is an active cancer (CA) preventive strategy to inhibit, delay or reverse human carcinogenesis using naturally occurring or synthetic chemical agents. Studies have resulted that several new phytochemicals possess cancer preventive effect such as polyphenols. Several cellular mechanisms contribute to the overall cancer preventive effects of dietary phytochemicals. Signal transduction pathways are potential molecular targets for chemoprevention by dietary phytochemicals. Increasing expression of detoxifying enzymes and/or antioxidant enzymes inhibit the cell cycle progression and cell proliferation, induce the differentiation and apoptosis, inhibit the expression and functional activation of oncogenes, increase the expression of tumor-suppressor genes, inhibit angiogenesis and metastasis by modulating cellular signaling pathways. Dietary supplements and/or food fortification based on food by-product may be alternative for above-mentioned healthy constituents.

### Biography

Ozlem Tokusoglu has completed her PhD at Ege University Engineering Faculty, Dept. of Food Engineering in 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 and scientifically edited two international books entitled "*Fruit and Cereal Bioactives: Chemistry, Sources and Applications*" and "*Improved Food Quality with Novel Food Processing*" by CRC Press, Taylor & Francis, USA Publisher, third book "*Food By-Product Based Functional Food Powders*" is in progress. She also published two national books entitled "*Cacao and Chocolate Science and Technology*" and "*Special Fruit Olive: Chemistry, Quality and Technology*". She organized and/or administered as Conference Chair at many conferences and congresses in various parts of USA and Europe.

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