



Advances in Chemistry

Special Issue on

Newly Emerging Concerns in Safe and Healthy Food

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The convenience food industry has advanced to such an extent that it is no longer a surprise to see that three quarters of supermarket shelves are filled with packaged and processed food. This is probably the need of the time since both the male and female are showing an increasing trend to spend more and more time in workplaces, limiting the time for traditional home cooking and increasing the demand for ready-made or processed foods. Despite wider concern, uses of pesticides, herbicides, and preservatives are getting tremendously rampant. Newly emerging nanomaterials such as nanocalcium, nanogold, nanocereals, nanomilk, and nanochocolate are flooding the markets at the tsunami speed. While certain nanomaterials such as food packaging nanopolymers have attractive and convenient properties, in many instances, toxic effects or health risk of these extremely tiny materials have not been properly evaluated. It has been roughly estimated that more than 3,000 chemicals have already penetrated the food supply chain and have brought versatility in colors, textures, and flavors in foods and feeds. These are not only alarming but also demanding the need of stringent regulatory laws and the *de novo* techniques both for the synthesis of safer alternatives and for the assessments of the existing and emerging ingredients and additives in foods and feeds.

On the other hand, mycotoxins such as cyclopeptide or aflatoxins, monomethylhydrazine, disulfiram-like indoles, muscarinic, and isoxazole are secondary toxic metabolites produced by fungi or molds. Their deleterious health effects in animals and human include death, sudden onset of allergy, gastrointestinal irritation, weakened immune systems, and changes in sexual phenotypes. They appear in the food chain as a result of fungal infection of crops, either by being eaten directly by humans or by being used as livestock feed. They are greatly resistant to digestion and could not be broken down by cooking or freezing treatments. Consequently, they remain in the food chain in meat and dairy products for a longer time.

Furthermore, certain animal derived materials such as pork, beef, lard, and porcine gelatin and collagens are highly sensitive religious issues and might provoke the outcry of public sentiments bringing enormous damage to certain food industries and food products. On the other hand, concerns over heavy metals, probiotics, and foodborne pathogens have been remaining increasingly dominant.

Despite worries, concern, and prohibition, fraud labeling and replacement of higher-valued ingredients have been rampant in processed and packaged foodstuffs and feeds. This is a grave concern of health, religions, wildlife, and fair-trade economy. Consumers must be informed through proper labeling what they are going to eat by spending their hard earned fortunes. Compromise cannot be made on quality issues since food components are integral part of our health, culture, and faiths. Consequently, innovative identification technologies are a must for the enforcement of regulatory laws in food and feed sectors.

This special issue will focus on the newly emerging safety involving various food additives, heavy metals, toxins, and pathogens that can endanger public health, religious faith, and consumer confidence as well as their authentication tools.

Potential topics include, but are not limited to:

- ▶ Safety issues in food additives including coloring and flavoring compounds
- ▶ Safety issues in fortified and value added foodstuffs including cereals and vegetables
- ▶ Safety issues in antioxidants, vitamins, and other nutraceuticals
- ▶ Safety issues in macro- and micronutrients and heavy metals
- ▶ Safety issues in food nanotechnology including newly emerging nanoingredients and packaging materials in food and feeds
- ▶ Safety issues in canned food and preservatives
- ▶ Safety issues in mycotoxins such as aflatoxins, ergot alkaloids, and *Fusarium* and any other toxins such as pesticides and herbicides
- ▶ Safety issues in meat and meat products
- ▶ Safety issues in milk and dairy products
- ▶ Safety issues in religious foods including Halal, Kosher, and vegetarian foods
- ▶ Newly emerging food authentications tools including PCR, spectroscopies, and biosensors

Authors can submit their manuscripts via the Manuscript Tracking System at <http://mts.hindawi.com/submit/journals/ac/food.chemistry/aiff/>.

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