

Special Edition  
"Food Security and Food Sciences"

## Editorial

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## Food Security and Food Sciences

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Food security features as one of the dynamic and complex challenge that the humanity ever faced in its history. Before talking about inter-relationship between food security and food sciences, it would be worthwhile to review the most accepted definitions of both terms.

According to the Food and Agriculture Organization (FAO): *'Food Security' exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life.*

According to the Institute of Food Technologists (IFT): *'Food Science' is the discipline in which biology, physical sciences, and engineering are used to study the nature of foods, the causes of their deterioration, and the principles underlying food processing.*

Analysis of the nature of global food security challenge reveals that it is associated with several other issues; increasing world population, changing diet patterns, falling water tables, growing number of hungry individuals, deteriorating agriculture soils, decreasing agriculture yields, climate change, and running short of time. Yes, we are just over seven billion now and will be nine billion by 2050 on the same size planet – the earth. In other words, the world population clock is ticking continuously and every second passed adding to our total number dwelling on the earth. Therefore, complexity of this challenge demands urgent measures rather to assume that the food crisis situation will develop after couple of decades in 2030 or 2050. A single event that may create large scale emergency such as poor harvest in a vast region, drought or famine would be enough to disrupt the world food supply, thus could force thousands of families to go hungry and end up with life threatening situation, i.e., severe malnutrition or even death.

A time when world is heading toward potential shortage of food for human consumption, the news about possibilities to increase productivity and yields is grim. Agricultural productivity is vulnerable and poor crop and livestock yields are predicted due to several factors - climate change is one of the major one. Many reports have pointed out that climate change will alter the stability of food supplies and create new food security challenges as the world seeks to feed nine billion people by 2050.

The solution of food security challenge requires world to ensure supply of sufficient, safe and nutritious food to everyone on our planet. This is not a simple task and multiple sectors – science and education, research and development, social, political and regulatory changes need to move forward in a systematic and synchronised manner. Food science as a discipline has a lot to offer by maintaining the stability of food supply. A better understanding of the nature of changes in food with climate change could inform us more appropriate processing technologies. Therefore, food science and allied disciplines have a role to play in food process innovation, food safety and quality improvement and an efficient supply chain development. This will ultimately contribute to the availability of more and safe foods for a longer time period.

One example how food science will be able to improve food security is removing the food allergens through food processing. This could put more food on table for people with

specific conditions such as lactose or gluten intolerant. Another example where food science seems a major contributor is reducing the food wastage through improvement in food safety and quality as well as improved utilization. According to the United Nations, approximately 1.3 billion tons of food (about a third of the world's food supply) was wasted in 2013. A reduction in this wastage will help to decrease the number of hungry individuals - currently 1.2 billion people are facing hunger and extreme poverty.

This special edition of *Advances in Food Technology and Nutritional Sciences – Open Journal* on “Food Security and Food Sciences” aims to highlight the food security challenge from a different angle and look at the possible ways offered by food sciences to address the issues impacting it. I also plan to contribute an article on ‘Food Product Innovation and Safety: Vital Elements of the Global Food Security’. We know there are many approaches that are suggesting the remedies of the potential food crisis situations at the moment. These approaches include: addressing global warming, droughts and climate change; increasing food productions; reduction in the world population growth; modernizing governmental policies; managing the fluctuation in food markets; and so on. Food science is a key player in new developing approach, which emphasizes to improve food systems and utilization through food product innovation, better food supply chain, preservation and storage as well as effective food safety management. I am optimistic about opportunity this special edition brings to us for presenting our position in tackling this global issue as food science professionals.