

# PREFACE

The Asian Food Safety and Security Association (AFSSA) is a voluntary, non-profit, charitable organization established in 2010. The 5<sup>th</sup> annual general meeting of Bangladesh-Japan Association for Science and Technology (BJAST) at Dhaka in 2010 decided to establish the Asian Food Safety and Security Association (AFSSA). The first annual meeting of AFSSA was held at Osaka Prefecture University, in September 15-17, 2012. This meeting decided to hold 2<sup>nd</sup> annual meeting of AFSSA to be held in Bien Hoa City, Dong Nai province, Vietnam in August 15-18, 2014.

The main objective of AFSSA is as follows:

- To forge effective cooperation among the member states in areas including climate change, food safety and food security.
- To disseminate research findings and future research in food safety and security.
- To help in building Asian Food Safety and Security Network.
- To help educational institutions by supplying equipment, books, materials, ideas, etc.
- To develop strong relationship between the Asian countries
- To exchange views, ideas by organizing seminars, symposia, conferences and meetings.
- To help secure funds for students to attend seminar, conferences, training programs.
- To launch a journal on Food Safety and Food Security with a focus on current trends and needs in Asia.

This conference discusses the key food safety, and food security issues. It brings together renowned experts, entrepreneurs and government officials from different countries to discuss current and emerging food safety and food security issues, find out common problems among the countries, future direction and collaborative research plans on food safety, food security and related topics.

The plenary sessions, and concurrent symposia, will also address the challenges facing Asia to ensure food safety in the development of new food products and processing technologies, internationalization of food trade, safety of foods derived from biotechnology, microbiological risks, emergence of new and antibiotic-resistant pathogens, particularly from emerging pathogens, directing research to areas of high risk, focus intervention and establishment of target risk levels and target diseases or pathogens.

The two-days scientific and poster presentation sessions will provide multiple opportunities for experts and participants to discuss key food safety, and Food security issues. Experts from governmental organizations, international organizations, entrepreneurs and universities from different countries will be able to share their ideas, address challenges, and discuss strategies and collaborative programs to enhance the continuing global efforts to deliver safe foods for a better health and environment of the people of the developing countries.

There are 32 articles have been selected to publish in the Journal of Food and Nutrition Science (JFNS) (<http://www.sciencepublishinggroup.com/j/jfns>). The last papers were selected and published in this proceeding.

The proceeding contains papers submitted by speakers from different countries based on presentation made in the conference. The views expressed are those of the authors, and the editorial committee takes no responsibility for the contents or comments, or the views of the Asian Food Safety and Security Association. However, it is believed that book will act as a good source for relevant information in relation to food safety and security.

The editorial committee is thankful to Asian Food Safety & Security Association for giving the permission and financial support to publish the proceedings.

**Ryohei Kada**  
**Jeyam Subbiah**  
**Chowdhury Rafiqul Ahsan**  
**Md. Latiful Bari**  
**Dam, Sao Mai**  
**Ngo, Ke Suong**



## Message from the President of AFSSA



**Takashi UEMURA, DVM, Ph.D.**

Professor Shijonawate Gakuen University,  
Osaka, Japan

It is my great pleasure and honor to extend the gratitude on the grand opening of the “2<sup>nd</sup> AFSA Conference on Food safety and Food Security in the presence of many distinguished guests.

The passions of some scientists in ASIA who believe that bio-science and biotechnology contribute to improvement in the quality of life and welfare of human beings of the world and know the importance of co-laboratory works and direct exchange of idea and information made this series of Conference start. The first Conference was held in Osaka on September, 2012 hosted by Osaka Prefecture University, JAPAN.

Sustaining of our passion, by holding the conference bi-annually, has been supported by private and public institutes/organizations of Lincoln University, Osaka Prefecture University, International Union of Microbiological Societies (IUMS), University of Dhaka, People Committee of Dong Nai Province, and Dong Nai University at Vietnam as the host, as well as by students, volunteers and financial supporters, and many distinguished guests have strongly encouraged us. I express my sincere thanks to all those hosts and supporters.

This International Conference is qualitatively improving as an international meeting; researchers from 20 different countries join in this 2<sup>nd</sup> conference, where higher level of research works will be presented and hot discussions will be expected.

Hopefully, I want to give the opportunity as many as possible for young researchers to attend the international meeting. Our endless voyage for obtaining tomorrow’s higher QOL and welfare of human beings by bio-science and biotechnology necessitates continuous supply of fresh and innovative wisdom.

Thank you all very much

A handwritten signature in black ink, appearing to be the name 'Takashi Uemura' in a stylized, cursive script.

**Takashi UEMURA, DVM, Ph.D**

# Message from People Committee of Dong Nai Province, Vietnam



**TRAN VAN VINH**  
**Vice President of People Committee of Dong Nai Province, Vietnam**

It is my great pleasure and honor to extend the gratitude on the grand opening of the “2<sup>nd</sup> AFSA Conference on Food safety and Food Security” in the presence of many distinguished guests.

Dong Nai province is one of the industrial province in Vietnam. There many manufactures are located in this area, including the food producing and food related companies, Vietnamese and foreign plans, such as: Vedan, Nestle, Vina coffe, Dona food, and so on.

Food safety and Food Security Associate is the organization, which connects the people in Asian and other place in the word that are interesting in the food safety and food security. That’s why, the conference, which is organizing by Food safety and Food Security Associate is very helpful for Vietnam and other countries.

The “2<sup>nd</sup> AFSA Conference on Food safety and Food Security” has been supported by private and public institutes/organizations of Lincoln University, Osaka Prefecture University, International Union of Microbiological Societies (IUMS), University of Dhaka, People Committee of Dong Nai Province and Dong Nai University at Vietnam as the host, as well as by students, volunteers and financial supporters, and many distinguished guests have strongly encouraged us. I express my sincere thanks to all those hosts and supporters.

There are many researchers from 20 different countries join in this conference, where higher level of research works will be presented and hot discussions will be expected.

Hopefully, I want to give the opportunity as many as possible for every people who are joining to the conference to meet each other, share the researches and find opportunities of the development

Thank you all very much

**Mr. Tran Van Vinh**

# Dong Nai University of Technology



**PHAN NGOC SON**  
**Principle of Dong Nai University of Technology**

Dong Nai University of Technology (DNTU) was established in 2005.

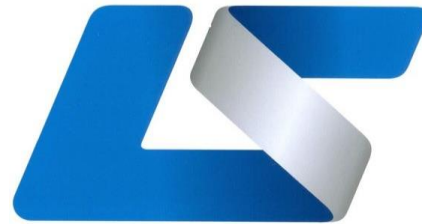
Dong Nai University of Technology is a major educational institution in higher education and vocational training system of Southern Viet Nam as well as a top leading private university in terms of teaching and research excellence, providing education services with disciplinary and professional diversity, and multi-level learning for thousands of students from all parts of the country. DNTU provides a creative and stimulating environment for students within its distinctive and traditional disciplines.

Students may be gaining a formal qualification to a wealth of industry experience, or they may be fulfilling a life-long dream to undertake further study for the sheer pleasure of learning.

The university is located at the central area of Bien Hoa City, 30km north of Ho Chi Minh City. Bien Hoa City lies in the center of the most dynamic quadrangle economic zone including Southern Dong Nai, Ho Chi Minh City, Vung Tau, Binh Duong, which attract the most foreign investment. Dong Nai has many large industrial zones. Each year, numerous skilled labors are needed for expansion of industrial activities in production facilities and of business services. The demand for qualified and trained manpower is great; however, the available labor force has not met the recruitment needs for human resources of the industrial zones. This is a great opportunity for education and training sector. In light of it, DNTU equips students with good knowledge and qualification so that they can be able to find a job easier after graduation.

In recognition of local and national concerns, we continually update our range of programs and research directions, leading, in turn, to graduates who are well-qualified, well-respected and in-demand locally and nationally. Graduates will forever have a worldwide network of support from DNTU and its alumni as they embark on their careers.

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