



Chii-Cherng Liao

**Food Industry Research and Development Institute (FIRDI),
Taiwan**

Director-General

Professional Experience:

- Deputy Director-General, Food Industry Research and Development Institute (FIRDI), Taiwan
- Director, Bioresource Collection and Research Center (BCRC), FIRDI
- President, Taiwan Association for Lactic Acid Bacteria
- President, Agricultural Chemical Society of Taiwan
- Secretary-General, Taiwan Association for Food Science and Technology
- Director of The Board, Taiwan Bio Industry Organization
- Director of The Board, Taiwan Quality Food Association
- Executive Director of The Board, Taiwan Premium Agricultural Products Development Institute
- Member of The Board of Food Safety, Executive Yuan, ROC (Taiwan).
- Member of The Board of Food Sanitation, Safety and Nutrition, Ministry of Health and Welfare, Taiwan

Honors/Awards:

- Outstanding Research Project Leader Award, Ministry of Economic Affairs, Taiwan
- Outstanding Achievement Award in Value Addition for Traditional Industries, Ministry of Economic Affairs, Taiwan
- Academic Achievement Award, Taiwan Association for Food Science and Technology
- Mr. J. T. Tsen's Invention Award, Taiwan Association for Food Science and Technology
- Technical Achievement Award, Agricultural Chemical Society of Taiwan
- Winner of the John C. Ayres Research Paper Competition, The Institute of Food Technologists (The Society for Food Science and Technology), USA

Expertise:

- Food Science and Technology, Applied Microbiology, Probiotics, Food Biotechnology.

Education:

- Ph.D. in Food Science, The Ohio State University, USA.
- B.S and M.S. in Agricultural Chemistry, National Taiwan University, Taipei, Taiwan.

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Lactic Acid Bacteria: From Culture Collection to Industry Development in Taiwan

Abstract:

The lactic acid bacteria (LAB) industry in Taiwan with a market size of over NT\$ 28 billion in 2016 has been developing for more than 50 years. Its development can be divided into five stages. At the startup phase (1962-1976), the introduction of Yakult and its business development played an important role. Enterprises such as Uni-Present, Guoxin, Weichuan, and Fresh Delight jointly drove industry expansion at the following common growth phase (1977-1990). At the same time, the Food Industry Research and Development Institute (FIRDI) started the research and development on LAB in order to provide technology transfer and service platform to the industry. The service ranges from strain isolation, identification, and storage to functional assay and technique guidance. This assistance has provided a solid foundation for the development of LAB industry.

In-depth and width application of LAB and product diversification constituted the unique feature of the multi-growth phase (1991-1999). To cope with the trend, the Bioresource Collection and Research Center (BCRC)/FIRDI committed itself to establish “local LAB bank” along with fermentation and downstream process technology. At the fourth stage or the value-creating phase (2000-2010), the government started to implement a health food certification system for LAB products. This has helped to create value-added functions for these products. Meanwhile, the products moved towards a diversified development. In order to render assistance to marketing and development of LAB industry, BCRC has begun to provide “one-stop service”, including LAB systematics identification, polyphasic taxonomy, characteristics screening, functional assay platforms, strain improvement, LAB genomic analysis platform, process optimization, scale-up from the bench to a pilot plant, and microencapsulation techniques. At the fifth stage of innovative breakthrough (from 2011), facing the era of microbiome, LAB industry in Taiwan will pay more attention to the international trends of food consumption, and strengthen its innovation to expand business opportunities.

FIRDI has deepened the R & D service platform for LAB industry in the past 35 years. BCRC will continue to assist the development of biotech-related industries in Taiwan by providing customized and value-added services based on science and technology in biological resources to promote industrial activities and create industrial values.