CHALLENGE TO INTRODUCE JAPANESE TECHNOLOGY TO THAILAND: CASE STUDY IN FOOD ALLERGEN ANALYSIS

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Masahiro Shoji has almost 30 years of experience in the R&D fields, covering protein chemistry, functional food and immunological assay for diagnostic and food safety. Presently, he is president of Morinaga Institute of Biological Science Inc., which is responsible for R&D of Bio-technology in Morinaga group. He holds a Doctorate degree in agriculture from Kyushu University (in Japan).

ABSTRACT

Food allergy represents a growing public health concern in modern society as it is fatal hazard and there is a remarkable increase in the number of sufferers, especially among babies and infants. Because no medication for food allergy has been established, the single effective way to protect those allergic individuals is the complete avoidance of hazardous allergenic food by the allergic individuals. Consequently, the food allergen labeling regulation, which helps the allergic individuals to examine incorporated hazardous food allergens in products through labels, has been enforced in many countries.

In Japan, food allergen labeling regulation was enforced in 2002. Given the enforcement, the analysis of food allergens became significant in food allergen management with respect to monitoring food allergen levels in food production and ensuring that food allergen contents in final products. Morinaga Institute has been involved in food allergen analysis since 2002, and developed a novel analytical method to detect food allergen in highly processed food, which was hardly analyzed before. Our method is adopted as the official food allergen analysis method in Japan, and supports the food allergen management and labeling regulation. The fact that no fatal accident by commercially processed food has been reported in Japan since 2002 proves the effectiveness of Japanese food allergen management system, which consists of regulation, management and analysis.

Intending to expand the use of our unique analytical method, we have challenged to introduce food allergen analysis to Thailand, aiming to strengthen the safety of Thai food products, with the support of the Ministry of Agriculture, Forestry and Fisheries.

As a beginning, we investigated the fundamental information about food allergy in Thailand. Our preliminary survey revealed that common Thai people did not know well about food allergy. However, our epidemiological survey collaborating with Thai major hospitals confirmed that 172 food allergic individuals primarily for sea food, eggs, milk, wheat and peanuts were found and considerable number of individuals had the experience of serious food allergic symptom, "Anaphylaxis." Also, greater than half of the allergic individuals had the experience of allergic symptoms after eating Thai commercial food, in which they had checked for their hazardous food allergen through labels. Hence, Thai food allergic individuals are longing for the adaption of food allergen labeling regulation, which Thailand still has not.

Whilst significant number of Thai food manufacturers, especially who export their products to Japan, EU and USA, have already practiced food allergen management for their products due to requests from foreign customers. Yet, some companies employ double labeling for identical products, i.e. label for export with food allergen declaration and that for domestic without food allergen declaration. We have observed that 15-18% of commercial food products sold in Thailand contained undeclared food allergen, of which the level is greater than 10 ppm, and some products were found to contain high percentage level of undeclared food allergen, which has high potential of eliciting serious allergic reactions to the food allergic individuals.

Upon our investigations, we have confirmed that food allergy has become an emerging food safety issue in Thailand, and we have confidence that our technology shall contribute to Thai society with respect to protecting the domestic food allergic individuals and to increase the reliability of exported Thai food products. At present, we are introducing our knowledge and technology to Thailand with our Thai partner, Kasetsart University.

Under the global trend to establish international "Standard," "Standardization" relating to food is also under process. Like many others, the standardization and harmonization about food allergen management are undertaken intensively by EU initiative. However, Japan, which is one of the most experienced in food allergen management, is hardly involved to construct international standards, probably by political influence, distance from Europe, language weakness etc. We hope that our challenge to introduce Japanese food allergen management technology to Thailand can contribute to the foundation of food allergen management system in Thailand, and be an aid to input Japanese experience and technology to regional "Standardization."

KEYWORDS

Food allergy, Food allergen analysis, Food allergen labeling regulation, Food allergen management, Thailand

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Chair Nakahara: Well, we are going to have the third presentation by Dr. Masahiro Shoji. He has almost 30 years of experience in the R&D field, and he is now the president of Morinaga Institute of Biological Science, Inc., and he holds a PhD degree from Kyushu University, Japan. Please start your presentation. His presentation is about challenges from the private sectors.

Dr. Masahiro Shoji: Thank you for your introduction and it is my great pleasure to have the honor of presenting our experience in this symposium. Before starting my topic, I would like to introduce our company, Morinaga Institute.

Morinaga Institute is an affiliate company of Morinaga & Co., which is one of the leading food manufacturers in Japan, and Morinaga Institute is focusing on our activities in biotechnology business, especially for the immunological analysis. For example, our food allergen detection reagent is authorized as a Japanese official method for food allergen analysis because of the strikingly high detection ability.

Although we have such remarkable advanced technology, our product is not smoothly penetrating to Europe and the United States markets. So we use the funding system of MAFF, which is so-called East Asia food industry activating strategy that is aiming Japanese food industry to go to Asia.

And what we did is, we tried to introduce our technology, especially food allergen analysis and management, to Thailand under the MAFF strategy because Thailand is a big food exporter as Dr. Warunee said, and food exporters must require food allergen management by the request of the foreign customer.

This is the perspective of the participants of our project. Morinaga Institute is working with Thai partners, such as Kasetsart University and Chulalongkorn University. And JIRCAS led us how to work efficiently with Thai partners because JIRCAS has accumulated experiences doing research with Thai collaborators. And also in Japan, STAFF (Present JATAFF) helped us to progress the whole project.

From now on, I would like to talk about our activities.

When we started our research work in 2007, food allergy was not known well in Thailand substantially, so we started to investigate whether food allergen management or analysis technologies would be useful for Thailand. First investigation was conducted for food allergy in Thailand.

Actually, according to publications, the individuals suffering from food allergy were already reported, and fatal anaphylactic shock was also reported. And also, the major allergens were milk, eggs, and shrimp and crab. But those data were so-called retrospective data and the more precise data was anticipated.

Therefore, we conducted a prospective survey on the food allergic patients, and we also investigated the opinion of the food allergic patients, what do they think about the labeling of Thai commercial food products. Those surveys were done in collaboration with the Thai Allergy Network which is a group of pediatric doctors of the nine prime hospitals in Thailand, as in Bangkok, Chiang Mai, Phitsanulok and Songkhla.

And we found out that 172 cases were medically diagnosed as food allergy, and the major allergic foods were milk, eggs, and seafood and wheat. Then common allergic disorders, including the anaphylaxis, were observed.

At that survey period, a food allergen labeling regulation was not enforced in Thailand, and even now Thailand doesn't have a food allergen labeling regulation. Under this situation, 97 percent of the patients examined the product label, if that product includes any hazardous food allergen. And 60 percent of patients experienced an allergic reaction after eating the food which did not declare as hazardous food for them. And 96 percent of the patients considered the labeling of food allergens is helpful for selecting their food.

Subsequently, we investigated the real situation of Thai commercial food products. We collected 142 Thai commercial food samples from local market and tested for undeclared food allergens in the products. As you can see, most of the foods were properly labeled. However, there are foods which contain undeclared food allergens. If we make a group containing food allergens greater than 10 ppm, which is the Japanese regulatory limit of food allergen, and this is the group, its number is 13 to 16 percent of the total tested number.

And moreover, the products located this area contained, the undeclared food allergen more than 1 percent. Those data suggested that the food allergic patient in Thailand were being exposed to a potential risk of food allergic accident.

And this result is quite consistent with our former research result; that is, 60 percent of the food allergic patients had the experience of eliciting allergic reaction after eating food product which did not declare any food allergen.

Then we investigated another stakeholder, which is the food manufacturer. The food allergen management of Thai food manufacturer who had HACCP certification was investigated; the survey was done by the questionnaire and direct interview.

Eighty-seven percent of the manufacturers exported their products and totally 74 percent of export countries, which is shown in red, had already food allergen labeling regulation, 66 percent of the export manufacturers already introduced food allergen management, and 56 percent of the products for export were labeled food allergens, while only 23 percent for domestic. This suggested the manufacturers had double labeling for the identical product. And 71 percent of the responded QC personnel thought that food allergen management is necessary. So basically, food allergen management has already practiced in Thailand because of the requirements from foreign customers.

As the summary, food allergens has been an emerging issue in Thailand, and Thailand already started food allergen management among the manufacturers who exports their products, meanwhile 172 allergic patients were found domestically, and they were protecting themselves by checking food labels. However, a significant amount of commercial Thai food products contained undeclared food allergens; accordingly the patients were exposed to the potential risk to occur an allergic reaction.

Consequently, Morinaga has convinced that Morinaga can play some role in Thailand; that is to contribute to Thai society by our food allergen management and analysis technologies. And then Morinaga decided to continue the collaborative research with Kasetsart University.

Firstly, we established the Food Allergen Analytical Laboratory in Food Quality Assurance center (FQA) of Kasetsart University, and then this FQA started the food allergen analysis service for the public under Morinaga advanced technology. The service number is increasing yearly, while we realized the high cost of analysis reagents which are imported from Japan.

Secondly, we held International Food Allergen Symposium twice with Kasetsart University, and we invited lots of Thai food manufacturers to symposia, – these are some scenes from the symposia, this is the president of Kasetsart University and this is the director of Thai FDA presenting in our symposium –, and we found out that lots of the food manufacturers had a strong interest in food allergen management.

Therefore, we started more practical food allergen management and analysis seminars, especially for persons in charge of production, with Kasetsart University.

In the meantime, we also continue to enlighten food allergy information by using "Food allergy" website, which is the first website specific for food allergy in Thailand. Because this website has Thai language version, general Thai people can access and understand this contents, and then they can collect the newest food allergy information. Now this website has an average of 6,000 accesses per month.

Until now, Morinaga and Kasetsart University made the good collaboration for food allergen enlightenment in Thailand. As the real business, the new service for food allergen analysis was started. Morinaga has constructed a close relationship with Kasetsart University, and our reliance on Kasetsart University was increased through the collaborative works. At the end of the day, we established a joint venture company with Kasetsart University last July, and this company is about to manufacture food allergen analysis reagents in Thailand in order to reduce the analytical cost for fulfilling local price demand, as Prof. Noguchi said already.

We are also considering that a food safety service based on food allergen management seminars and based on the website. Likewise, we do anticipate creating a new value by networking with Morinaga and Kasetsart University, business sector and academia, and Japan and Thailand.

Finally I would like to acknowledge all our collaborating partners here, also our activities were financially supported by MAFF, and also special thanks to the late Mr. Satoru Miyata. He was the former representative of JIRCAS Southeast Office and he was the key person for us to settle down to Thailand. Thank you very much for your attention.

Chair Nakahara: Thank you, Dr. Shoji.