

*Consumer Market for Functional Foods in Thailand*

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Abstract

Functional food is any healthy food claimed to have a health-promoting property beyond the basic function of supplying nutrients. The awareness in developing functional foods is thriving, driven largely by the market potential for foods that can improve the health and well-being of consumers. However, functional food is starting consumer attraction in Thailand. The purposes of this study are (1) to explore the currently existing functional food products in the local retail market in order to improve understanding of consumers' market supply and (2) to determine consumers' motivation, attitudes towards functional foods which open a market opportunity for functional food in Thailand. This study surveys were showed from 650 consumers who live in Bangkok. The results of this investigation displayed that the functional food market is growing in Thailand. The current local functional food products in the market were highly competitive with consumers' approaches. It showed good agreement with the survey result, and represented there is two types of consumers. First type, who is not interested in health benefit from functional food, is called "Ordinary". The second type is "Healthlism" that consume functional food products regularly. However, both types of consumers are confident with the information about the benefit of this product from Scientists/Researchers, scientific research reports and Food industry. Consequently, based on this study, Thailand companies and the food industry could develop their market strategy to compete in the functional food market.

Keywords: Functional food, Attitudes, Factor analysis

## 1. INTRODUCTION

The food industry is directing new product development towards the area of functional foods and functional food ingredients due to consumers' demand for healthier foods. The functional foods interest is increasing throughout the world market; also functional foods have been expanding and are driven by economic and social trends (LFI, 2006). In Thailand, as in many Asian countries, has promoted an industry, export-oriented food products and thus leading to improved productivity (UNDP, 2011). However, one of the most significant discussions in the field of functional foods market is consumers' attitude, due to the lack of understanding about functional food (Childs and Poryzees, 1998).

Each country has different type of consumers and different credibility to trust on information source. Recently, a considerable amount of literature has been published on consumers' motivation, attitudes towards willing to buy functional foods. Finnish consumer and South Brazil have positive attitudes towards functional foods and enough purchasing power (Barcellos & Lionello, 2011; Urala & Lahteenmaki, 2004). Since, Bhaskaran & Hardley (2002) indicated quality, price/value, convenience and health effect of functional foods are the key factors in purchase intention. Correspondingly, the full market potential for functional foods can only be maximized with the development of market-oriented products that gain consumer acceptance (Bogue et al., 1999). In addition, lifestyle is a social factor based on the basic needs of humans that is strongly affected by their simultaneous needs for integration (belonging to a group) and differentiation (individuality) (Szakaly et al., 2011). Accordingly, demographic, economic, social and cultural changes in consumer lifestyles continue to have a significant impact on attitudes towards food products and subsequent consumer demand (Reuters Business Insight, 2000), for example, the literature shows that Male consumers are less promising target group for functional foods than female (Urala, 2004). However, strategies for functional foods industries were developed from these predictions. The future market development is influenced by degree of familiarity and acceptance of functional food as well (Menrad, 2003).

The goal of the present study was to understand the consumers' aspect with local food companies' market supply in Thailand. Accordingly, through the market observation techniques which help to understand consumer's need, attitudes and perceptions more completely. Secondly, we evaluated the consumers' motivation, attitudes and intention to buy functional foods in Thailand. Those out comes could help major implications for food company and economic progress.

### **Functional Food**

The growing awareness of the healthy lifestyle has led to an increasing demand for food products that not only provide beyond basic nutrition but support health above.

Health conscious consumers are increasingly seeking functional foods information in effort to confirm the health safety of functional food products. Although the definition of functional food has not universally accepted (Roberfroid, 2002), so far Siro (2008) pointed out that “ In most countries there is no legislative definition of the term and drawing a border line between conventional and functional foods is challenging even for nutrition and food experts. However, some countries have their own health claims regularly in order to protect consumers from false and misleading claims, for example, Japan has FOSHU (Foods for Specified Health Use), Australia and New Zealand has FSANX (Food Standards Australia New Zealand), US has FDA (US Food and Drug Administration), and Europe has FUFOSE (Functional Food Science) (EUFIC, 2006).

One definition of functional foods that the EC concerted Action on Functional food Science in Europe (FUFOSE) have proposed “A food that beneficially affects one or more target functions in the body beyond adequate nutritional effects in a way that is relevant to either and improved state of health and well-being and/or reduction of risk of disease. It is consumed as part of a normal food pattern. It is not a pill, a capsule or any form of dietary supplement” (FUFOSE, 2010). Moreover, Kotilainen and Spence (2006) have divided four types of functional foods categories. First type, Fortified products definition is a food fortified with additional nutrient. Second type, Enriched products definition is a food with added new nutrients or components not normally found in a particular food. Third type, Altered products definition is A food from which a deleterious component has been removed, reduced or replaced with another substance with beneficial effects. Last type, Enhanced commodities definition is a food in which one of the components has been naturally enhanced through special growing conditions, new feed composition, genetic manipulation, or otherwise. However, this is just one of the possible classifications.

## **2. RESEARCH METHOD**

The purposes of this study are characterize the currently existing functional food products in the local retail market and identify consumers' motivation, attitudes towards functional foods. Sequentially, we used two stages to research consumer market for functional foods in Thailand. First, we used market observation techniques which identified available functional foods products at local retail level. We have visited four retail stores (Big C, 7-11, Tops, Tesco-lotus) and categorized the type of functional product, main benefit offer to customer, the brand and status of the food processing industry. Second, the questionnaire used during the survey in order to identify the character and frequency of consumer consumption. The questionnaire performance was pre-test in English, and then translated into Thai version. The survey was conducted in Bangkok, capital of Thailand. Bangkok was selected to ensure that range of consumer types are included in the study.

## **2.1 Data collection**

The data was collected in July and August 2012. Four supermarket and stores in Bangkok were selected for the interviews. Examples of functional foods were prepared and showed during interviews in order to make sure that respondents are understand the same point. Although there is no way of knowing if those included are representative of the overall population, the survey is still expected to give a first overview of relevant issues and to allow to derive insights into the attitude of functional foods by consumers in Bangkok.

The questionnaire preparations methods were adopted from Barcellos and Lionello (2011). The questionnaire was divided into three parts. The first part containing, socio-demographic questions and frequency of consumption of functional foods about the respondents were asked. In the second part of the questionnaire, question investigated the attitudes towards functional foods were assessed. In the last part of the questionnaire, the set of questions related to motivations to consume and trust in the innovation system agents were collect. The 7-point Likert type scale: 1, strongly disagree and 7, strongly agree was used.

## **2.2 DATA ANALYSIS**

The statistical analysis was performed using a SPSS statistical software package (SPSS Inc., 2003). Exploratory factor analysis (EFA) was performed on the scores for the 24 items of attitude towards functional food questionnaire, to reduce the original items into different factors. A factor loading above 0.4 was significant. A varimax rotation method was performed; the matrix and factor loading and the reliability of scales (Cronbach's alpha measures) are presented. The Kaiser-Meyer-Olkin (KMO) should be 0.5 or grater to measure the sampling adequacy. The Bartlett's test of sphericity is also significant at  $p=0.000$ , indicating that the correlation matrix is not an identity matrix, a positive signal for the analysis.

To form groups of related variable, two-stage of cluster analysis was applied. An agglomerative hierarchical cluster analysis based on scores given to the different attitudes towards functional foods items was carried out to identify segments of consumers (stage1), the k-means procedure implemented on the hierarchical clusters' centroids followed, with the option of identifying 2-5 clusters (stage 2). The cluster membership variable and the socio-demographic, attitude and consumption frequency variables were analyze by Crosstabs. Interpretation of results and conclusions were presented in the result section.

## **3. RESULTS**

### **3.1 Functional Product available at large retail chains in Thailand**

The results of functional product availability at large retail chains in Thailand showed in Table1. According to observation market survey, found that the functional foods

companies mostly attempt to add a benefit and emphasize beauty. Dairy products containing probiotics was expanding in market, it is become a new trend in Thailand. The concentrated extracts, products and drink products were highly promoted to control a beauty balance. It is possible that consumers choose food and drinks which not only give them energy but are also able to be of benefit to beauty body and the digestive system.

Table1: Functional/Enriched/Fortified products available at large retail chains in Thailand

Category/ Food Product	Benefit	Brand/Company (status*)
<b>Dairy Products</b>		
Fermented milk	Gut health –Probiotic (bifidobacteria, Lactobacillus acidophilus ),Omega 3, Vitamin(A,C,D), Mineral	Yakult/Yakult (MN) Dutch Mill (LO) Betagen (LO) Foremost(MN)
Yogurt	Gut health –Probiotic (bifidobacteria, Lactobacillus acidophilus ), Vitamin, Antioxidants, Collagen, Omega 3	Danone Dairy (MN) Dutch Mill (LO) Foremost(MN)
Enriched UHT Milk	Antioxidants ,Bone health (calcium),Vitamin, Iron, Collagen	Nongpho/Nongpho Dairy (LO) Mali/The Thai Dairy (LO) Anlene/Fonterra(MN)
<b>Concentrated Extracts Products</b>		
Essence of Prune	Beauty Balance, VitaminB2 (Riboflavin) (Calcium), Vitamin C (Ascorbic Acid) Antioxidence, Gut health	Brand'sVeta/Cereboss (MN) Scotch Puree/S & Sons (LO) DHC Prunc/DHC (MN) Blink Prune/T.C National (LC)
Essence of Chicken	Protein, Calcium, Iron, Vitamin B	Brand's/Cereboss(MN) Scotch/S & Sons(LO)
<b>Drink</b>		
Energy drinks	Brain health – mood (taurine, caffeine)	M-150/Osotspa (LO) Ranger/ThaiBev(LO) Peptin/Osotapa (LO) Oishi/Oishi group(LO) Namacha/Kirin (MN)
Beauty drink	Beauty Balance, Vitamin B2 (Riboflavin), Vitamin C (Ascorbic Acid) Antioxidence, Collagen	Dakara/Tipco (LO) Puriku/T.C. Pharmaceutical (LO)



\*status is defined as LO stand for the company's capital is local (Thailand) and MN stand for multinational.

### 3.2 Results from Functional Food Consumer survey in Thailand

#### Demographic profile of the sample

The majority of respondents are female (64.9%) 422 from 650 interviewees. Men's interviewees are minority (228). Ages ranging between 25 and 44 years old were 69.4%, younger than 24 years old were 28.3% and between 45 and 64 years old were 2.2 % of the sample. Only a small number of respondents with above 65 years old have 1 respondent. Respondents with university education represented 61.5% of the sample, followed by secondary completed education represented 18.2%, with post-graduate degree 17.4%. The smallest numbers of respondents were technical education 2.8% of the total.

The response to household situation, most of these surveyed indicated that 64% of the sample live with parents, 20.2% live alone, 7.5% live with friends, 4.8% lives with its spouse/husband, 2.9% live with their spouse and kids. Only 4 respondents live with their son/daughters. Regarding to household incomes, approximately half of these surveyed were 10,001-30,000 Baht. 26.3% of respondents had income lower than 10,000 Baht. Between 30,001- 50,000 Baht and over 50,001 Baht are represented 14.5% and 9.1%. Only one respondent had income over 50,001 Baht.

The frequency of consumption was described in Table 2. The response rate was 41.7% who consume functional food category on weekly basis, while 16.3% consume it daily, indicating that the overall response to this food category represented a positive trend for functional food market.

Table 2: Frequency of consumption of functional food in Thailand

	Frequency	Percent
Daily	106	16.3
Weekly	271	41.7
Fortnightly	65	10.0
Once a month	84	12.9
Rarely	124	19.1
Total	650	100.0

### 3.3 Attitude towards Functional foods

The respondents were responded a positive attitude towards functional food in Thailand. This study produced results that items highly ranked were composed by health, safe and innovation product provided by functional foods. The majority of respondents are women. Noteworthy similarities exist between the attitudes expressed

by the main motivations in this study and those described (Bech-Larsen & Scholderer, 2007; Freweret al., 2003; Barcellos and Lionello, 2011).

To identified the main dimensions within attitudes towards functional food in Thailand by Exploratory Factor analysis (EFA). The factor loading of Healthy benefit factor was from 0.59 to 0.817, Safety factor was from 0.551 to 0.717, Innovation products factor was form 0.449 to 0.735 and medicine factor was form 0.706 to 0.834. Reliability of the attitudes factor (Cronbach's alpha) were higher than 0.6. Total Variance was Explained 63.43% of the phenomenon. The correlation matrix of factor loadings the Kaiser-Meyer-Olkin (KMO) and Bartlett's test illustrate significant results in 0.953( $p = 0.000$ ).

In recent years, the research in attitudes towards functional foods found by Urala and Lahteenmaki in 2004 and 2007, which identified four attitude factors towards functional food in the 2004 study (reward from using functional food – FF Rew, confidence in functional foods – FF Con, necessity for functional foods – FFNec, and functional foods as medicine FF Med) and four factors in 2007 (reward from using functional foods – FF Rew, confidence in functional foods – FF Con, necessity foods – FF Nec and safety of functional foods – FF Saf). Barcellos and Lionello (2011) found three factors such as reward from using functional foods – FF Rew, trust in functional foods – FF Tru and functional foods as medicine FF Med.

Four factors found in our study. The first factor named “healthy benefit” (FF Hea). The main propose of this dimension is using functional foods get benefits and improve welfare. The second factor was termed “safety” (FF Saf). This issue describes what consumers investigate information and trust the safety of functional foods. The third factor was described “innovation product” (FF Inn). It was combination between technology and development product. Customers who rate score high on this scale are welcome to try a new product. The last factor named as “medicine” (FF Mec). It described strongly believe in food that have like medicine effects. The mode of Attitudes towards functional foods would be precious for development functional food market in Thailand.

### **3.4 Cluster analysis**

Cluster analysis was used to analyze the differences, and two clusters were found in the scores, named “Ordinary” and “Healthlism”. The summary of the cluster profiles in terms of Socio-demographic characteristics and consumption frequency and Motivation, attitudes towards functional foods and trust in the agents of the innovation system.

Table 3: Cluster Profiles in terms of socio-demographic characteristic (percentages)

Social-demographic profile		Sig.	Cluster 1 N1=248 38.2%	Cluster 2 N2=402 61.8%	Sample N=650 100%
Frequency of consumption	Weekly	**	35.9	45.3	41.7
Gender	Female	*	59.7	68.2	64.9
Age	25-44	n.s	66.9	70.9	69.4
Household status	Parents	n.s	60.9	65.9	64.0
Education	University	n.s	64.9	59.5	61.5
Income	10,001-30,000	n.s	50.8	49.5	50

Note: Chi-square tests with \*\*:  $p < 0.01$ ; \*:  $p < 0.05$ ; n.s: not significant

As illustrate in table 3, clusters significantly ( $p \leq 0.05$ ) differed in their gender and frequency of consumption. Cluster1 has men respondents' ratio higher than cluster2. Their income and education were higher than the other one. Nevertheless, their frequency of consumption was less than cluster2. The number of females who consume functional food is significantly greater than that of males ( $p < 0.05$ ). However, men are found to be less frequent consumers. Hence, the name of this cluster is "Ordinary". Cluster 2 was composed mainly by women with middle ages. The majority of functional foods were consumed on weekly basis. The segment of consumers seemed to be concerned about wellness and beauty; the name was called "Healthlism".



Table 4: Cluster profiles in terms of motivations to consume, confidence in the FF

Measurement items	Sig.	Cluster 1 N1=248 38.2%	Cluster 2 N2=402 61.8%	Sample N=650 100%
<b>Motivations to consume(Alpha=0.914)</b>				
1.Habit or tradition	**	4.17	5.48	4.98
2.To keep a healthy lifestyle	**	4.09	5.74	5.11
3.To prevent diseases (in the individual or family)	**	3.64	5.38	4.72
4.To control appetite and body weight	**	3.92	5.39	4.83
5.To increase wellness	**	3.98	5.77	5.09
6.To improve physical appearance	**	4.07	5.59	5.01
7.To increase mental and physical performance	**	3.61	5.08	4.52
8.Gut health/flora equilibrium	**	4.12	5.65	5.06
9.To reduce cholesterol/heart diseases	**	3.77	5.36	4.76
<b>Attitude towards Functional Food</b>				
Healthy benefit from using functional foods (Alpha=0.948)	**	4.13	5.37	4.26
Safety of functional foods (Alpha=0.817)	**	3.77	4.76	4.75
Innovation product of functional foods (Alpha=0.736)	**	4.70	5.70	5.21
Functional foods as medicine (Alpha=0.698)	**	3.23	4.28	3.76
<b>Confidence in the FF innovation system agents(Alpha=0.906)</b>				
10.Health professionals	**	3.93	5.63	4.98
11.Dieticians/Nutritionists	**	4.23	5.79	5.20
12.Pharmaceutical/medical industry	**	4.12	5.63	5.05
13.Retailers	**	3.75	5.08	4.57
14.Food industry	**	4.37	5.88	5.30
15.National Health Authorities	**	4.24	5.83	5.22
16.Scientists/Researchers	**	4.46	5.97	5.39
17.Media (Television)	**	4.06	5.34	4.85

Note: Z-tests with \*\*:  $p < 0.05$

All items measured on a 7-point scale with end points 1 = “strongly disagree” to 7 “strongly agree”

Cluster profiles in terms of motivation identified that consumer from cluster1 were not consumed functional food because of healthy motivation. While consumers from cluster2 strongly consume functional food regularly in order to increase wellness and to control appetite and body weight. It has related to socio-demographic profile in terms of gender and age. Furthermore, cluster2 is interesting innovation product of functional foods and healthy benefit from using functional foods more than cluster1. Both clusters have confidence in their Scientists/Researchers and Food industry. In

the part of marketing view, whether Food Company launches a new product to market and consumer are willing to try functional foods. This survey would be useful for marketing strategy.

#### **4. CONCLUSIONS**

Functional foods market in Thailand is more competitive and become popular in the future trends. Changes in consumer's lifestyles, awareness and interest in their own health and well-being become important factors according to this study. The analysis of market observation showed that functional foods companies are launching developed products that provide specific health benefit beyond basic nutrition. Our survey result shows that consumers in Thailand have highly positive attitudes towards functional foods. Women seem to be more likely to purchase functional foods than men. The survey results also showed that consumers are more aware of healthy benefit from using functional foods, safety of functional foods, innovation products of functional foods and functional foods as medicine. In this study, consumer segments were divided into two groups. First group composed of consumers with high income, education, and men respondents' ratio higher than the other group. While the other group was not only more concerned about wellness and beauty but also strongly consume functional foods regularly. Moreover, scientists/researcher and the food industry have high credibility and could help inform consumers about benefit of functional foods. Such market development follows specific characteristics that begin to cooperate between research and development section and marketing section in order to develop key success factors for the functional foods market. Some limitation of present study should be addressed. Further research should conduct more information about Thailand consumer's perception of functional food and explore how to increase consumers' functional food knowledge in Thailand. Furthermore, design and package of products will be affecting to consumer purchase.

## REFERENCES

- Barcellos, M. & Lionello, R. (2011). Consumer Market for functional foods in South Brazil. *Int. J. Food System Dynamics*, 2(2), 2011, 126-44.
- Bech-larsen, T. & Scholdere, J. (2007). Functional foods in Europe: consumer research, market experiences and regulatory aspects. *Trends in Food Science & Technology*, 18, 231-234.
- Bhaskaran, S. & Hardley, F. (2002). Buyers beliefs, attitudes and behavior: foods with therapeutic claims *Journal of Consumer Marketing*, 19, 591-606.
- Bogue, J. C. & Delahunty, C.M. & Hency, M.K. & Murray J.M. (1999), "Market oriented methodologies to optimize consumer acceptability of cheddar-type cheeses", *British Food Journal*, 101(4), 301-16.
- Childs, N.M. & Poryzees, G.H. (1998), "Food that help disease: consumer attitude and public policy implications", *British Food Journal*, 100(9), 419-26.
- European Food Information Council (2006), "Basic functional foods", available at: [www.eufic.org](http://www.eufic.org) (accessed 8 January 2013).
- Frewer, L. & Scholderer, J. & Lambert, N. (2003). Consumer acceptance of functional food: issue for the future *British food Journal* 10, 714-731.
- FUFOSE: Functional Food Science in Europe. available at: [www.ilsa.org](http://www.ilsa.org)
- Kotilainen, L. & Rajalahti, R. & Ragasa, C. & Pehu, E. (2006). Health enhancing foods: opportunities for strengthening the sector in developing countries. *Agriculture and Rural Development Discussion Page* 30.
- LFI. (2006). The International Market for Functional Foods: Moving into the mainstream? Retrieved May 28, 2007a.
- Menrad, K. (2003). Market and marketing of functional food in Europe. *Journal of Food Engineering* 56, 181-188.
- Reuters Business Insight (2000), "Future innovations in food and drinks", available at: [www.just-food.com](http://www.just-food.com) (accessed 8 January 2013).
- Siro, I. & Kapolna, E. & Kapolna, B. & Lugasi, A. (2008). "Functional food Product development, marketing and consumer acceptance-A review". *Appetite*, 51 (2008), 456-467.
- SPSS Inc. (1993). 444 North Michigan Avenue, Chicago, IL 60611, U.S.A.
- Szakaly, Z. & Szente, V. & Kover, G. & Polereczki, Z., Szigeti, O. (2011). The influence of lifestyle on health behavior and preference for functional foods. *Appetite*, 58 (2012), 406-413.
- UNDP. (2011). Thailand Human Development Report 2007-Sufficiency Economy and Human Development United Nations Development Programme, Bangkok.
- Urala, N. & Lahteenmaki, L. (2004). Attitudes behind consumers' willing to use functional foods. *Food Quality and Preference*, 15, 793-803.
- Urala, N. & Lahteenmaki, L. (2007). Consumers changing attitudes towards functional foods. *Food Quality and Preference*, 18, 1-12.



