

Understanding Thai consumer attitudes and expectations of ginseng food products

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Abstract

Ginseng is now increasingly popular in Thailand because of its multifunctional health properties. However, the recognition and acceptance of ginseng food products in Thailand have been limited. The objectives of this research were to investigate consumer attitudes toward ginseng products and to obtain useful information to develop ginseng food products that meet the expectations of Thai consumers. Consumer surveys and focus group interviews were conducted. The 430 respondents participated in the consumer surveys. Six focus group interviews ($n = 51$) were also conducted. Results showed that most Thai consumers know ginseng. Ginseng is representative of a healthy image. Consumers wanted new products, such as beverages, and this product should be easily absorbed or digested. For focus group interviews, older participants (more than 40 years old) had positive impressions toward ginseng food products in contrast to young participants. Participants were concerned about convenience, price, and taste and aroma of new ginseng products.

Practical applications

The study of Thai consumer attitudes and expectations of Korean ginseng products posed an interesting challenge and could provide information for promoting Korean ginseng in Thailand. The results of this research can be used for idea generation and further development studies on ginseng products. Advertisement and education may also increase consumption of ginseng food products among Thai consumers.

1 | INTRODUCTION

Ginseng (*Panax ginseng* C.A. Meyer) has been used as a medical plant in Asia for over a 1,000 years. It is widely used as a traditional medicine because of its health benefits. Several studies have demonstrated the beneficial effects of ginseng, such as blood circulation improvement, blood cholesterol improvement, anti-diabetic (Kang, Lee, Ahn, & Lee, 2013; Qi, Wang, & Yuan, 2011; Yuan, Kim, Kim, & Chung, 2012), neuroprotective activity, memory improvement, anti-inflammatory (González-Burgos, Fernandez-Moriano, & Gómez-Serranillos, 2015), anticancer activity (Ahuje, Kim, Kim, Yi, & Cho, 2018; Lee et al., 2014; Xu et al., 2016), anti-fatigue, anti-stress effects, immune function improvement (So, Lee, Kim, Hyun, &

Han, 2018; Wang et al., 2018), and anti-aging effects (Bjorklund et al., 2018). Moreover, ginseng is also known to increase vitality, health, and longevity, especially in elderly people (Yang, Ren, Zhang, & Wu, 2017). It is reported that ginseng contains many bioactive compounds, including saponins, alkaloids, polysaccharides, free amino acids, and phenolic compounds (Chung, Kim, Seguin, Jun, & Kim, 2012). The main bioactive compounds of ginseng are triterpenoid saponins known as ginsenosides. More than 40 ginsenosides have been identified in ginseng root (Yang, Hu, Wu, Ye, & Guo, 2014). These compounds have played important roles in multifunctional properties.

Due to the growth of healthy trends around the world, the health food market focusing on natural food, medicine, and other products

from the chemical synthesis of natural ingredients are expanding greatly. Among the natural health foods, ginseng has the highest value because of its multifunctional health properties. It was estimated at approximately \$303 million for the worldwide ginseng products trade value in 2018. In Thailand, ginseng products import and export values were \$440,303 and \$7,115, respectively (United Nations Commodity Trade Statistic Database, 2016). However, the bitter tastes in ginseng are considered as a factor that affects consumers' acceptance and utilization of ginseng in food products (Chung, Lee, Rhee, & Lee, 2011). The sensory properties of ginseng are characterized by earthy, woody, molasses, astringent, bitter, and sweet flavors (Chung, Hong, et al., 2011). If a variety of ginseng products appropriate for the market and customers are developed, it is expected to form the largest health food market in the future. It is important for ginseng to be recognized by the market and consumers for continuous growth and development of the ginseng industry (Beag & So, 2013). The functional foods from ginseng can be considered as alternative treatments. The undesired properties of ginseng for developing new food products need to be improved to increase consumer acceptance. Therefore, the study of Thai local commercialization of Korean ginseng poses an interesting challenge and will provide information for promoting Korean ginseng in Thailand.

The focus group is one of the qualitative methodologies that can be used to obtain knowledge, attitudes, and consumer behavior. It is a planned discussion to identify the response of a small group of participants on a selected topic of interest and conducted in a permissive and nonthreatening environment (Krueger & Casey, 2015). The main advantage of focus groups is that panelists are have unlimited responses and interact or change their opinions about products during discussion with other participants (Acocella, 2012; Dransfield, Morrot, Martin, & Ngapo, 2004). The focus group is generally used in stages of product development and market research to explore new product concepts and observe consumer reaction to the new product (McQuerrie & McIntyre, 1986; Esmerino et al., 2017). By understanding the consumers, manufacturers can direct limited research and development resources to focus on those with the best potential of return (Lee & Lee, 2007).

A survey research is classified as a quantitative research. The primary purpose of this type of survey research was to obtain information describing characteristics of a large sample of individuals of interest relatively quickly (Ponto, 2015). Chung, Hong, et al. (2011) performed a survey of consumer attitudes and market potential of ginseng food products in the US. The study found that US consumers had a low level of initial interest in ginseng food products. Participants suggested that original ginseng flavor should be improved to establish potential for success in the US market. Lee, Yu, Jeong, Moon, and Jung (2012) conducted a survey to collect data on major attributes important for the purchase of fresh ginseng by consumers. The subject of survey was the consumers ($n = 250$) 20 years old or older who have purchased fresh ginseng over the past year. As a result, the attributes considered when purchasing fresh ginseng were condensed to the three factors: Physical characteristics, safety, and cultivation information.

In this research, the objective was to investigate the knowledge and attitudes of Thai consumers toward Korean ginseng using consumer surveys and focus group interviews.

2 | METHODOLOGY

2.1 | Gathering information from consumers using consumer surveys

2.1.1 | Subjects and procedure

Chiang Mai, a major city in the northern part of Thailand, has a diverse population. A total of 430 respondents of general consumers were randomly selected by using nonprobability sampling; accidental sampling methods (Etikan, Musa, & Alkassim, 2016). Before performing the survey, the respondents were informed about purpose of the study. The data were gathered from consumers in three different places in Chiang Mai: Princess Srinagarindra's Park, Chiang Mai University, and Northern Agricultural Co-Operatives Federation Limited. These testing areas were located in downtown of Chiang Mai, where, apart from local people, people from other parts of Thailand are residing too.

Paper-based questionnaires were used in this study. The questionnaire was divided into two sections: A demographic section and consumer attitudes and expectations regarding ginseng and new ginseng food products section. The gender and age of consumers were asked to obtain information about the demographic characteristics in the first section. The second section of the questionnaire was designed to gather quantitative data using 10 closed questions regarding topics including the knowledge about ginseng and ginseng products, experience with ginseng products and type and other information of new food products from ginseng that you expected for development. The consumers could write comments in the final question of this questionnaire. The questionnaire was pretested in a small sample of consumers to test its reliability and validity before being distributed to the actual sample.

2.2 | Gathering information from consumers using focus group interviews

2.2.1 | Subjects and procedure

In our study, we conducted the focus group interviews shortly after the survey had been completed in order to support the survey findings and probe to obtain some particular details (Wolff, Knodel, & Sittitrai, 1993). Six focus groups were conducted in Chiang Mai, Thailand. Each group consisted of 8–10 participants, with a total of 51 participants. Participants were over 18 years old. All participants were recruited by personal interview and rewarded with a gift for their participation. The participants were selected based on their interest and their experience with ginseng food products.

Each group was moderated by the same moderator with experience in moderating focus groups. A discussion guideline (Figure 1) was designed following the recommendations of Lawless and Heymann (2010). The moderator started with a self-introduction and briefly oriented and stated the ground rules of the focus group. After the first session, participants were asked about their awareness,

1. Introduction (10 min)
 - 1.1 Moderator's introduction
 - 1.2 Objectives of a focus group
 - 1.3 State the ground rules of focus group
 - 1.4 Taping of the focus group
2. Warm-up: Self-introduction of participants
3. Start the session
 - 3.1 Awareness and interest in ginseng food products
 - a. Introduction of ginseng (5 min)
 - b. What are your opinions about ginseng food products? (5 min)
 - c. What types of ginseng food products that you have ever seen in supermarket? (5 min)
 - d. Among those ginseng food products, what types of ginseng products have you ever consumed? (5 min)
 - e. How often do you purchase ginseng food products? (5 min)
 - 3.2 Development of ginseng food products
 - a. Presenting ginseng food products available in market (5 min)
 - b. How does it taste when you consumed ginseng products? (15 min)
 - c. Which characteristic that need to be improved in ginseng products? (5 min)
 - d. What ingredients can be added in ginseng product? (10 min)
 - e. What types of ginseng food products that will have market potential for Thai consumers? (5 min)
 - 3.3 Factors affecting purchase intent of ginseng food products
 - a. What factors influenced you to purchase or consume those ginseng food products? (5 min)
 - b. How much are you willing to pay for ginseng food products? (5 min)
4. Closing focus group and thank you for all participants (5 min)

FIGURE 1 Discussion guideline for the focus group interview on ginseng food products



FIGURE 2 Samples of ginseng food products in Thailand

TABLE 1 The demographic of consumers participated in the consumer surveys ($n = 430$)

Gender	Respondents	Percentage (%)	Age (years)	Respondents	Percentage (%)
Male	170	39.53	Under 20	30	6.98
Female	260	60.47	20–29	145	33.72
Total	430	100.00	30–39	106	24.65
			40–49	67	15.58
			Over 50	82	19.07
			Total	430	100.00

attitudes, and concerns about ginseng food products. Participants received pictures of ginseng food products that were available in the market along with their prices. Pictures of ginseng products available in the Thai market are shown in Figure 2. These products were used to stimulate discussion. The product ideas to develop ginseng food products for Thai consumers and factors affected their purchasing decisions were investigated. Each focus groups session lasted an average of 90 min.

2.2.2 | Data collection and interpretation

Data collection from the survey was analyzed using SPSS (Statistical Package for Social Sciences, Version 17.0). Frequencies and percentage were expressed for consumers' answers. For focus group data, all six focus group sessions were recorded by a video recorder. After all of six sessions had been completed; all recorders were transcribed and analyzed for each topic. Data collected by the observers were combined with those from the recorders. All written comments of participants were also incorporated.

3 | RESULTS

3.1 | Gathering information from consumers using consumer surveys

The demographics of respondents (Table 1) showed that most of them were 20–29 years of age (33.72%), 30–39 years of age (24.65%), over 50 years of age (19.07%), 40–49 years of age (15.58%), and under 20 years of age (6.98%). There were 60.47% females and 39.53% males. For the proportion of respondents familiar with ginseng and ginseng products as shown in Table 2, about 97.67% of respondents did know "Ginseng." This group was selected to continue the surveys. If respondents did not know "Ginseng" (2.33%), the survey was stopped at this question. The attitudes of consumers toward ginseng products are also shown in Table 2. The majority consumers (59.29%) selected the term "Healthy" to describe their attitude toward ginseng. About 16% of consumers selected the term "High price" and less than 10% of consumers selected the terms "Premium quality" (10%), "Rare" (6.19%), "Traditional" (4.76%), and "Beauty" (3.10%).

Furthermore, Table 2 shows the number of consumers that have consumed ginseng products. The number of "Yes" answers was

TABLE 2 Attitude and familiarity of Thai consumers on ginseng food products based on consumer surveys

	Respondents	Percentage (%)
<i>Number of consumers that know "Ginseng" (n = 430)</i>		
Answer		
Yes	420	97.67
No	10	2.33
<i>Attitude of consumers toward Ginseng products (n = 420)</i>		
Attitude		
Healthy	249	59.29
High price	70	16.67
Beauty	13	3.10
Premium quality	42	10.00
Rare	26	6.19
Traditional	20	4.76
<i>Number of consumers that have consumed ginseng products (n = 420)</i>		
Answer		
Yes	220	52.38
No	200	47.62
<i>Type of ginseng products that consumers have consumed (n = 220)^a</i>		
Type of products		
Drying powder	36	10.29
Snack/dessert	15	4.29
Instant tea/drinks	129	36.86
Candy	83	23.71
Medicine	27	7.71
Soup/concentrated	56	16.00
Others	4	1.14
<i>The attribute of ginseng products that consumers like (n = 220)^a</i>		
Attributes		
Taste	91	32.27
Color	37	13.12
Texture	26	9.22
Aroma	47	16.67
Flavor	49	17.38
Others	32	11.35
<i>The attribute of ginseng products that consumers dislike (n = 220)^a</i>		
Attributes		
Taste	64	20.71
Color	41	13.27
Texture	32	10.36
Aroma	112	36.25
Flavor	48	15.53
Others	12	3.88

^aAllowed respondents to selected more than one answer choice.

slightly higher than the number of "No" answers. Respondents that selected this choice were allowed to answer Questions 4–6 (results shown in Table 2), while the other respondents that selected "No" were asked to skip to Question 7. The types of ginseng products that consumers had consumed before were instant tea or drinks (36.86%) and candy type products (23.71%). About 10.29% of consumers had consumed dry powder products, and less than 10% of consumers had consumed medicine products (7.71%) and snack or dessert type products (4.29%). The attributes of ginseng products that consumers liked are shown in Table 2. Almost 32.27% of consumers liked the taste of ginseng products. However, other attributes of ginseng products (flavor, aroma, color, texture, and others) were less than 18% of the total responses. The dislike attributes of ginseng products are shown in Table 2. About 36.25% of consumers did not like the ginseng aroma, 20.71% did not like the taste, and the rest of attributes (flavor, color, texture, and others) were less than 16%.

The main purposes for the consumption of ginseng products are shown in Table 2. More than 70% of consumers consumed ginseng products for their health, and less than 11% of respondents consumed ginseng products for beauty (10.95%); others consumed ginseng products to follow the trend (8.33%) and for social image (3.81%). The results of expected new ginseng products are shown in Table 3. Almost 42.86% of consumers wanted beverage type products. The other types were food seasoning (19.29%), soup or concentrated food (15.71%), candies (11.67%), and snack or dessert products (10%). As shown in Table 3, easily absorbed/digested was the most wanted quality in new ginseng food products (31.33%). The second was a source of energy (24.77%). Table 3 also showed factors affecting consumers' decision to purchase new ginseng food products. They were pleased to buy the new ginseng food product if it had a lot of health benefits (45.95%). The other factors were price (21.43%) and the product quality (18.81%).

3.2 | Gathering information from consumers using focus group interviews

The information from six focus group interviews with a total 51 participants were reported (Tables 4–6). Participants were assigned to a group by age, Groups 1–3 were under 20–39 years of age and Groups 4–6 were 40 to over 50 years of age. They were 8 males and 43 females. Most of them consumed ginseng products at least once a month. The summarized focus group responses for awareness and interest in ginseng food products are shown in Table 4. The first impression about ginseng food products from all participants were high price and healthy products. Most of the participants thought that ginseng had a lot of health benefits. They were not popular among Thai consumers because of their high price. Some of participants in Group 3 answered that ginseng was more suitable in beauty or cosmetic products than in food products. In Group 1, participants thought that ginseng food products gave an image of food for aging people, so

TABLE 3 Expectation of consumers toward new ginseng food product based on consumer surveys

	Respondents	Percentage (%)
<i>Main purpose of consumers to consume ginseng products (n = 420)</i>		
Purposes		
For health	323	76.90
For beauty	46	10.95
Follow the trend	35	8.33
For social image	16	3.81
Others	0	0.00
<i>Type of new ginseng food product (n = 420)</i>		
Type of products		
Beverage	180	42.86
Snack/dessert	42	10.00
Candy	49	11.67
Soup/concentrated	66	15.71
Food seasoning	81	19.29
Others	2	0.48
<i>Qualification of new ginseng food product (n = 420)^a</i>		
Qualification		
Source of energy	136	24.77
Easily absorbed/digested	172	31.33
Vegetarian	50	9.11
Local food	63	11.48
Frozen food	34	6.19
Long shelf-life	22	4.01
Extra nutrients such as vitamin, collagen	69	12.57
Others	3	0.55
<i>Main factor that makes consumers decide to purchase new ginseng food product (n = 420)</i>		
Factors		
Product quality	79	18.81
Price	90	21.43
Good taste	46	10.95
Health benefits	193	45.95
Marketing	12	2.86
Others	0	0.00
Total	420	100.00

^aAllowed respondents to selected more than one answer choice.

the products were not popular among young people. Some participants in Group 2 still wondered about the benefits of ginseng products. They explained that the benefits of ginseng were still unclear. They suggested more studies on the health benefits of ginseng products. Most of participants had seen ginseng food products and other related products in supermarkets before they were interviewed. The type of ginseng products that were frequently found in Thailand market were coffee, tea, beverages, dietary supplements, capsules or

tablets, and concentrated extracts. A few participants had seen ginseng in the form of food ingredients and dry or raw ginseng root. Almost all participants had consumed ginseng instant coffee. They explained that most of the food companies often launched coffee-type products containing ginseng. The products were easy to find, offered health benefits, and were affordable. A few participants had consumed other types of products such as chicken broth mixed with ginseng extract, ginseng capsules or tablets, bird's nest with ginseng, beverages, and ginseng root. These products were not popular among consumers because of their high price and undesirable taste. One of participants in Group 3 had tasted ginseng candy once, and one participant in Group 5 consumed ginseng tonic daily.

During the discussion, it was found that participants in Groups 1–3 (age under 20–39) had never purchased ginseng food products by themselves, as most of them were given from others as souvenirs. They stated that ginseng food products had high prices and they could not afford to buy these products. In contrast, participants Groups 4 and 5 (age 40–over 50) had purchased ginseng food products by themselves. They bought ginseng food products because they considered them as healthy foods. Some of them purchased ginseng products monthly, and some of them repurchased ginseng products to replenish their supplies.

Regarding the development of new ginseng foods, the summarized information is shown in Table 5. The moderator asked about the taste of ginseng products that participants had consumed. The sensory attributes that most described by participants from ginseng products included aroma, taste, and aftertaste. The aromas found in ginseng products were herbal and woody aromas, while some participants perceived a pungent aroma. Most participants stated that ginseng food products had a mild but bitter taste, while some participants detected sweetness in ginseng products. All participants agreed that ginseng food products had a bitter, woody aroma, and astringent aftertaste. In some groups, participants perceived spicy, burnt, and cooling effects after consumption of the products. In Group 3, one participant perceived a wasabi-like aftertaste.

The participants had different opinions about the characteristics of ginseng that need to be improved. All participants in Groups 1–3 suggested to reduce the ginseng aroma in newly developed ginseng food products. However, participants in Groups 4 and 5 wanted the ginseng aroma to remain the same as in the fresh product. There were different opinions in Group 6; some participants wanted to reduce ginseng's aroma, but others did not want to reduce ginseng's aroma. Moreover, some participants wanted a sweet and a bit of sour taste to reduce the bitter taste in newly developed ginseng products. Participants agreed that ginseng food products should have desirable sensory characteristics.

The participants suggested some other ingredients that could be added to improve consumer's acceptance of ginseng food products, including honey, citrus fruits (lemon and lime), berries, fruit juice, chocolate, alcohol, menthol flavor, milk, and yogurt. Participants wanted to include ginseng in various new foods but the most popular one was coffee. They explained that they liked to at least one cup of

TABLE 4 Awareness and interest in ginseng food products obtained based on focus group interviews

Group	What are your opinions about ginseng food products?	What types of ginseng food products that you have ever seen in supermarket?	What types of ginseng products have you ever consumed?	How often do you purchase ginseng food products?
1	High price, rare, healthy products, for aging people, taste and aroma were bad	Coffee, tea, beverages, supplement dietary, capsules or tablets, concentrated extract, raw ginseng	Coffee, chicken broth mixed ginseng extract, instant tea, ginseng soup, ginseng capsules	Never purchase by themselves, a souvenir from others
2	High price, healthy, for aging people, the benefits of ginseng not clear	Coffee, tea, beverages, concentrated extract, supplement dietary, capsules or tablets, food seasoning, raw ginseng root	Coffee, chicken broth mixed with ginseng extract, bird's nest with ginseng, beverages, raw ginseng root	Never purchase by themselves, a souvenir from others
3	Healthy, beauty, high price, bad aroma	Concentrated extract, alcohol, tea, capsule, tonic, candy	Ginseng candy, ginseng tea	Never purchase by themselves, a souvenir from others
4	High price, healthy, a lot of benefits.	Tonic, coffee, tea, beverage, concentrated extract, food ingredients	Coffee, tea	Only once, one time per 3 months
5	High price, a lot of benefits, healthy product	Coffee, beverages, supplement dietary, soup, food ingredients, drugs, concentrated extract, tonic	Coffee, tonic, capsule	One time per month, daily consume, one time per 3 months
6	High price, healthy product	Coffee, tea, supplement dietary, capsules, concentrated extract, tonic, dry ginseng root	Coffee, chicken broth mixed with ginseng extract, tonic, ginseng, tea	Once in a while, one time per months

TABLE 5 Development of ginseng food products based on focus group interviews

Group	How does it taste when you consumed ginseng products?	Which characteristic that need to be improved in ginseng products?	What ingredients can be added in ginseng product?	What types of ginseng food products that will have market potential for Thai consumers?
1	Herbal aroma, woody aroma, earthy aroma, bitter, astringent aftertaste, spicy aftertaste, cool aftertaste	Reduce the ginseng aroma, sweeter taste	Honey, chocolates, citrus fruits, berries	Food seasoning, beverages, gummy, beauty drink,
2	Herbal aroma, woody aroma, pungent aroma, bitter, astringent, burnt	Reduce the ginseng aroma, sweeter taste	Honey, lemon, lime, chocolate, berries	Tablets, capsule, coffee, candy, chocolate filling
3	Herbal aroma, woody aroma, bitter, astringent, mild taste, sweet taste, wasabi aftertaste, menthol after taste	Taste should be sweeter and sour, reduce the ginseng aroma	Honey, fruits juice	Capsules, instant drink, ice-cream, beverage
4	Herbal aroma, woody aroma, bitter, astringent, sweet taste	Ginseng aroma should be the same as fresh product	Honey, fruit juices, lemon, lime product	Beverages, coffee, alcohol (beer), tablets, candy, tonic, bakery products
5	Herbal aroma, woody aroma, pungent aroma, bitter, astringent, sweet taste	Ginseng aroma should be the same as fresh product	Honey, lemon, lime, alcohol, fruit juices, milk, yogurt	Tablets, food seasoning, coffee, tonic, candy, jelly, bakery product
6	Woody aroma, herbal aroma, bitter, sweet taste	Reduce the ginseng aroma and bitter taste, remain ginseng aroma	Fruit juices and aroma, menthol flavor, beer	Candy, cakes and cookies, beverages, lozenges

ginseng-containing coffee per day to make them awake during the day. The other types were beverages, food seasonings, capsules, lozenges, and tonics. Some of the participants suggested using ginseng in sweet products, such as chocolate, ice cream, and bakery and confectionary products. They also wanted the new products to be convenient and easy to be consumed.

The important factors that made participants purchase or consume ginseng food products were their price and health benefits (Table 6). Some participants were concerned about the taste, aroma, promotion, company's brand, and packaging. Most participants stated that the prices of ginseng food products in the current Thai market were very high. However, some of the participants were not

TABLE 6 Factors affecting purchase intent of ginseng food products based on focus group interviews

Group	What factors influenced you to purchase or consume those ginseng food products	How much are you willing to pay for ginseng food products?
1	Price, taste, benefits, advertisement, packaging	Equally or more expensive than regular products
2	Price, benefits, company's brand, rare, advertisement	Depend on type of product, equally to the regular product
3	Benefits, price, advertisement, taste and aroma, promotion, packaging	Depend on type of product, equally to the regular product
4	Price, benefits, taste and aroma, rare, advertisement	Depend on type of product, equally to the regular product
5	Price, benefits	Depend on type of product, less than or equally to the regular product
6	Price, health benefits, advertisement	Depend on type of product, equally to the regular product

concerned about the price as long as it offers a lot of health benefits. However, some participants stated that they were concerned about the taste in new ginseng food products. As far as the prices of the products, most participants agreed that the prices of newly developed ginseng food products should be equal to the regular ginseng food products. Some of the participants suggested that the prices should be lower, but others disagreed, voicing it would ruin the high-quality image of ginseng food products. Therefore, the price of new ginseng products should be depending on the product's type and the amount of ginseng in the product.

4 | DISCUSSION

Results of the survey showed that most Thai consumers were aware of ginseng. It represented a healthy image. More than half of consumers have eaten ginseng products in the past. They liked the taste but did not like the aroma of these products, citing the strong and pungent aroma of ginseng. Consumers wanted new products to be beverages, and this product should be easily absorbed or digested. They were willing to purchase new ginseng food product if it offered lot of health benefits.

From results of the focus group interviews, participants in each group revealed a variety of awareness, developmental ideas, and purchasing factors for ginseng food products. They had different opinions on the image of ginseng products, frequency of purchases and sensory attributes of the products. The participants older than 40 years of age had positive impressions about ginseng products, while younger participants had negative impressions. Older participants were willing to purchase ginseng products because of their health benefits.

In the case of young participants, they were concerned about purchasing some ginseng products because of their price. Most participants thought that ginseng food products had a bitter woody aroma and astringent after taste. These findings were similar to those reported by Chung, Hong, et al. (2011). They reported that Korean red ginseng products were mainly described as having a bitter, molasses, earthy, and woody aroma and taste.

In the case of functional foods, consumers wanted to try new products because of their health benefits, but their flavor, texture, and taste would determine whether they would consume them again (Barrios, Bayarri, Carbonell, Izquierdo, & Costell, 2008). Importantly, the participants in our study pointed out that the sensory characteristics of ginseng need to be improved. Almost all participants had similar ideas about using honey and fruits in newly developed ginseng products. According to the report by Chung, Hong, et al. (2011), participants suggested using more sweeteners and preferred honey over sugar or artificial sweeteners in ginseng food products to reduce bitterness. In our research, the participants also were concerned about ginseng aroma. They also wanted to have a sweeter taste in new ginseng products. Adding fruity, citrus, cinnamon, or ginger flavors into ginseng food products was recommended as a way to mask its earthy and musty flavors. Participants expected the new ginseng products to be convenient and easy to be consumed, such as beverages and confectionary and bakery products.

The important factors that made participants purchase or consume ginseng food products were price and health benefits. These results were in contrast to the study by Chung, Hong, et al. (2011). The product brand was the primary factor for U.S. consumers when choosing ginseng food products, because they could predict the quality of the product by the brand. Packaging labels and price also affected their purchases. More advertisement, marketing, and education of ginseng's benefits are needed in order to increase consumption of ginseng products. Newsholme (2002) mentioned that sensory aspects were not a main consideration for selected functional foods in English consumers. Advertisement had influence on some of the participants. Participants thought that education about the health benefits of ginseng must be conducted, because Thai consumers may not be aware of ginseng's health benefits. This reason was similar to a previous study revealing that increasing awareness and knowledge about functional food would increase its consumption (Tiedje et al., 2014; Vella, Stratton, Sheeshka, & Duncan, 2014).

CONCLUSIONS AND FUTURE RESEARCH

This study demonstrates that most Thai consumers, both in consumer surveys and focus group interviews, generally know about ginseng and ginseng food products in the market. However, they thought Thai consumers may not be aware of ginseng's health benefits. Different attitudes between younger and older consumers were observed. Older consumers (over 40 years old) were more likely to have a positive impression toward ginseng. For new ginseng food product development, consumers preferred beverages that were easily absorbed or digested (result from consumer surveys) and products that were convenient and easy to be consumed, such as beverages and

confectionary and bakery products (results from focus group interviews). Results from focus group interviewing illustrated that almost participants had similar ideas about using honey and fruits in newly developed ginseng products. They were concerned about sensory attributes, especially ginseng's aroma. More advertisement, marketing, and education of ginseng's benefits are needed in order to increase consumption of ginseng products.

This current work was the first stage to generate ideas for developing new ginseng food products that meet the expectations of Thai consumers. Our near future research will be focused on development of new ginseng products based on the obtained information. Descriptive analysis and quantitative consumer research will be performed to obtain various types of data including product attribute profile, consumer preference, sensory liking, consumer emotions, purchase intent, and so forth. Multivariate statistical analysis will be performed to find relationships among product attributes, consumer perception, and purchase intent.

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