International Journal of Engineering & Technology, 7 (3.33) (2018) 112-114

International Journal of Engineering & Technology

Website: www.sciencepubco.com/index.php/IJET

Research paper

Development of Functional Healthy Korea Traditional Soondae with Addition of Organic Farming Pumpkin Using Sensory Evaluation

Young-Kyun, Kim*

**Department of Culinary Science, Honam University,*
#62399, Eodeung-daero, Gwangsan-gu, Gwangju, Republic of Korea
**Corresponding author E-mail 2012027@honam.ac.kr*

Abstract

In this paper, in order to propose the standard cooking method of Soondae, which is one of most favorite traditional food sausage type Korea.
Nowadays, obesity and cardiovascular diseases are changing food consumption habits; these changes have fostered the development of products with functional ingredients that meet the market demands for maintaining a healthy body. The people's interest to the healthy, Low-calories food is growing up, the Foodservice industry is developing and making Functional food, which helps to a sale strategy.
In order to propose the standard cooking method of Soondae, which is one of most favorite traditional food sausage type Korea, In This study was to develop the Soondae with addition of organic farming pumpkin using sensory evaluation. The survey for the recognition and preference for Soondae using organic farming pumpkins performed from 15 to May 30 in the year of 2018 by subjecting 159 customer, and frequency analysis was used for the statistical technique. We analyzed the possible data by use of statistic program SPSS Windows 18.0 Version. Through the survey results, the organic farming pumpkin Soondae develop new products and recipes.
Questionnaire investigation result for the group revealed that 60% or more of the group showed common level of their interest in the development of Pumpkin Soondae. Improved texture added pumpkin. Dietary fiber, crude protein of Pumpkin Soondae increased but crud fat and salinity of Pumpkin Soondae were decreased. Pumpkin Soondae functionality has been improved. Modern men, colorectal cancer, adult diseases, such as cardiovascular disease and increase as the increase of dietary fiber and carbohydrate reduction seem to have a very positive effect.

Keywords: *Soondae, Organic Farming Pumpkin, Functionality, New product*

1. Introduction

Soondae is a famous traditional sausage type food in Korea. Metabolic syndrome has become a worldwide health issue that results in the increased risk of chronic degenerative diseases such as diabetes, cancer, and cardiovascular disease [1]. Nowadays, obesity and cardiovascular diseases are changing food consumption habits; these changes have fostered the development of products with functional ingredients that meet the market demands for maintaining a healthy body [2]. One of main concerns of modern people is health. Healthy life is considered as the most important issue in life. In the diet, decreases in activity, and increases in consumption of animal-source foods and flour, causing nutritional imbalance [3].
Accordingly, illnesses such as obesity and other illnesses that afflict the adults are emerging as a social problem. However, recent consumers concern about the adverse effects associated with the overconsumption of fat have led to the reduction of fat contented in the meat food product [4]. As a solution measure, consumption of functional food is expected to alleviate chronic illnesses and illnesses that afflict adults. Likewise, there are many attempts to include functional food when producing convenient preferred food with extensive sweet taste and fat substances [5].
The people's interest to the healthy, Low-calories food is growing up, the Foodservice industry is developing and making Functional food, which helps to a sale strategy.
The pumpkin were determined total phenolic contents, β-carotene contents, and antioxidative effects by Free radical scavenging activity(DPPH) and ferric reducing antioxidant power(FRAP). Pumpkin is significantly high the total phenol (4.17±0.62 mg GAE/g), β-carotene content (1.04±0.02 mg/100 g), and antioxidant activities in DPPH (IC50 630.97±0.52) and FRAP (1.069±0.084 [6].
Therefore, the present study aimed to promote health through the development of Soondae by using organic farming pumpkin and to be helpful in activating the local economy by enhancing the consumption of pumpkin.

2. Materials and Methods

2.1. Study Subject

Total 159 person (80 male, 79 female) in Gawngju who culinary major student and food specialist were selected. For questionnaire completion method, the self-administration method was used.
For research tools to measure awareness and preference based on questions used by Choi MK and Jung JC [7].

Copyright © 2018 Authors. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

2.2. Data Processing

For data analysis, the questionnaires with answers completed were collected, data with double entry or no-entry was excluded, and valid samples were coded according to the guideline of coding. The coded data was input individually into the computer, and then frequency analysis, Duncan's multiple range test ($p<0.05$) was used to determine the difference among the treatment mean of SPSS Windows 18.0 Version statistical program.

2.3. PH

The pH values of Soondae were measured in homogenate prepared with 5g of sample and drilled water(20ml) using a pH meter9Model 340, Mettler-Toledo Gmbh, Switzerland), All determinations were perform in triplicate.

2.4. Proximate Composition

Compositional properties of Soondae were performed using AOAC [8]. Moisture content was determined by weight loss after 12 h of drying at 105c° in a drying oven (SW-90D, Sang Woo Scientific Co. Korea), Fat content was determined by Soxhlet method with a solvent extraction system (Soxtec® Avati 2050 Auto System, Foss tecator AB, Sweden) and protein was determine by Kjeldahl method with an automatic Kjeladhl nitrogen analyzer (Kjeltec®2300Analyzer Unit, Foss Tector AB, Sweden), Ash determined according to AOAC Method 923.03.:

2.5. Sensory Evaluation

Soondae was evaluated for color of appearance, Sweet taste, salty taste, vinegar flavor, roasted sesame like, elasticity, umami, hardness, overall accept ability. Soondae were cooked a 100±2c° for around 1 hr., air-cooled to 8-10c°, and cooked sample were cooled to room temperature at 21c°, cut into quarters and served to the panelists in random order. Sensory evaluations were performed by the panelists under fluorescent lightening (350 lux). The cooked sample were evaluated using a 10-point descriptive scale (1=extremely undesirable, 10= extremely desirable).

2.6. Material

Fresh pork ham was purchased from Gwangju Agricultural and marine wholesale market) located in Gwangju and Organic Farming pumpkin was purchased from Haeya Farm located in Mooangun. Pumpkin Soondae were cooked a 100±2c° Pumpkin Soondae was evaluated for color of appearance, Sweet taste, salty taste, vinegar flavor, roasted sesame like, elasticity, umami, hardness, overall accept ability. Pumpkin Soondae were cooked a 100±2c°

2.7. Methods

Fresh boneless pork trim, pork fat, pork inside round, pork blood(seongi), glutinous rice, pumpkin, cabbage, soybean sprout, onion, soybean paste were purchased from local processors. Pumpkin, glutinous rice were prepared by stirring appropriate amount of flour in DW for 1 hour at room temperature by heating at 95 °C with continuous stirring for 30 min. In the case of bum addition, chapped garlic, chapped leek and gum solutions were prepared, respectively, prior to paste production by hydrating the appropriate amount of gum in water at 100 °C.

Table 1: Formulas and recipe of Pumpkin Soondae

Pumpkin Soondae (Serves: 5, Quantity: g, Cooking time 2hr.)			
• Ingredient & Quantity			
Pork intestine	100g	Pork Blood(seonji)	1cup
Pork inside round	100g	Glutinous rice	1cup
Pumpkin	100g	Cabbage	20g
Soybean sprout	20g	Pepper	15g
Chopped leek	1tbsp	Chopped garlic	1tbsp
Salt	15g	Chili powder	1tbsp
Sesame	1tsp		
• Standard Recipe			
①Trimming pork intestine. ②Mixed steamed rice, poached cabbage & soybean sprout, ③Mixed steamed pumpkin, chopped onion, pork Blood(seonji) salt & pepper+②. ④Stuffing in pork intestine ②+③. ⑤ Boiled at 100℃ during 40min additional soybean paste. ⑥ Cool off to ⑤ and served sauce.			

As shown in Fig 1 manufacturing process of Pumpkin Soondae

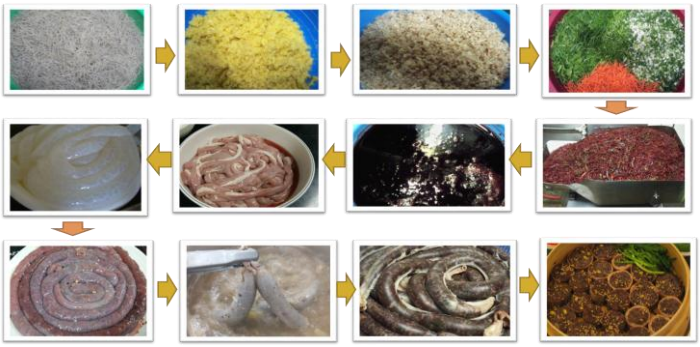

Fig. 1 manufacturing process of Pumpkin Soondae

3. Results

3.1. Proximate Composition of Pumpkin Soondae

Table 2. Shows the results of analyse
The general components of the pumpkin soondaeng breads according to Korean Food standards codex (2009) In case of Pumpkin Soondae, it revealed to contain 70.09% of moisture, 11.3% of crude ash, 16.8% of crude protein, 11.3% of crude fat, 11.96% of dietary fiber, and 6.20 of salinity, 6.20of ph. It shows superior characteristics in terms of nutritional components than other comparative groups.

Table 2: Quality comparison of Pumpkin Soondae and other Soondae produced by different companies in Korean market.

	Crude protein (%)	Dietary fiber (%)	Salinity (%)	pH	Moisture (%)	Crude fat (%)
PS	16.8 ± 0.1^{A}	11.96 ± 0.01^{C}	6.20 ± 0.1^{C}	6.20 ± 0.1^{C}	70.9 ± 0.3^{A}	11.3 ± 0.7^{D}
F1	9.5 ± 0.1^{A}	5.30 ± 0.2^{A}	2.30 ± 0.9^{A}	6.11 ± 0.0^{D}	56.3 ± 0.3^{D}	24.4 ± 0.3^{A}
F2	10.2 ± 0.0^{B}	9.82 ± 0.4^{B}	2.82 ± 0.5^{B}	6.30 ± 0.0^{B}	56.8 ± 0.3^{C}	24.8 ± 0.2^{A}
F3	8.6 ± 0.0^{A}	7.75 ± 0.5^{B}	2.75 ± 0.8^{B}	6.28 ± 0.1^{C}	58.3 ± 0.3^{D}	20.3 ± 0.7^{C}

A, B,C,D : Means with different superscript in the same column significantly differ at $p<0.05$
PS: Pumpkin Soondae
F1~F3: The control group Soondae sold at a large mart by3 different companies

3.2. Sensory Evaluation

The results of Sensory evaluation comparison of Pumpkin Soondae and other Soondae produced by different company in Korean market. . In case of color, sweet taste, roasted sesame like, elasticity, umami, and overall acceptability was higher than control Group. Pumpkin Soondae showed superior characteristics in the

sensory evaluation than the other comparative groups. Various meat product with containing dietary fiber had higher overall acceptability scores due to dietary fiber.

Table 3: Sensory evaluation comparison of Pumpkin Soondae and other Soondae produced by different companies in Korean market

	Color	Sweet taste	Salty taste	Vinegar flavor	Roasted sesame like	Elasticity	Umami	Hardness	Overall acceptability
PS	6.33 ±1.95^{A}	7.33 ±2.24^{A}	4.98 ±1.58^{A}	4.98±1.58^{A}	6.25 ±0.01^{B}	6.23 ±0.95^{A}	7.09 ±0.23^{A}	5.43 ±0.98^{A}	6.68 ±1.37^{A}
F1`	6.15 ±0.12^{A}	5.35 ±0.02^{A}	6.30 ±0.19^{A}	6.11±0.12^{B}	4.78 ±1.38^{A}	6.01 ±0.12^{A}	5.63 ±0.13^{B}	7.21 ± 0.11A	5.24 ±0.23^{A}
F2	5.25 ±1.50^{B}	4.82 ±1.04^{B}	7.82 ±2.05^{B}	6.30±2.15^{A}	5.22 ±0.12^{A}	5.15 ±1.56^{B}	5.68 ±0.03^{B}	7.32 ± 1.95^{B}	5.51 ±0.12^{A}
F3	6.16 ±1.24^{A}	6.16 ±1.24^{A}	7.75 ±0.18^{B}	6.28±0.01^{A}	4.84 ±1.14^{B}	4.84 ±1.14^{B}	4.84 ±1.14^{B}	4.84 ±1.14^{B}	4.84 ±1.14^{B}

A, B: Means±S.d. (N=159) Means with different superscript in the same column significantly differ at $p<0.05$
PS: Pumpkin Soondae
F1~F3: The control group soondae sold at a large mart by3 different companies

4. Conclusion

Questionnaire investigation result for the group revealed that 60% or more of the group showed common level of their interest in the development of Pumpkin Soondae. Improved texture added pumpkin. Pumpkin and Cabbage added a Soondae dietary fiber improved Soondae hygiene is important and flavour. Soondae functionality has been improved. From the preliminary experiment and sensory evaluation, the basic recipe of Pumpkin Soondae.

Customer's desire is constantly changing, and efficient promotion of new product development is important. It is no exaggeration to say that securing competitiveness through active new product development that reflects this paradigm has become a task for the ground

In summary, pumpkin could have potential as a source of dietary fiber which be used as functional ingredient for meat product. It was suggested that Soondae formula contain pumpkin could be used for taking up a position as new product in Soondae Market

References

[1] Jiménez-Colmenero, F., Cofrades, S., López-López, I., Ruiz-Capillas, C., Pintado, T., & Solas, M. T. Technological and sensory characteristics of reduced/low-fat, low-salt frankfurters as affected by the addition of konjac and seaweed. *Meat Science*, (2010a). 84(3), 356-363.

[2] Prior, R.L.; Wu, X.; Schaich, K. Standardized methods for the determination of antioxidant capacity and phenolics in foods and dietary supplements. J. Agric. *Food Chem*. (2005), 53, 4290–4303...

[3] Shafrir, Y. and Guy, R., STAM: simple Transmembrane Alignment Method. *Bioinformatics*, 20 (2004), 758-769.

[4] Linda Stadley, History of Sponge cake. (http:// /whatscook ingamerica.net/History/Cakes/SpongeCake.htm) (2004)

[5] Whang H.J.Park Y.K.,and Seog H.M., Carotenoid pigment of pumpkin cultivated in Korea. *Korean J.Food & Nutr*. (1999, .12(5):508-512

[6] Korean Food Standard Codex. (2006.

[7] Choi, M.K. And Jung, J.C., The Importance-Performance Analysis of Bakery café Choice Attributes Perceived by Customers in Seoul, *Journal of Korean society Food science Nutrition*.(2006), 35(4), 456-463.

[8] AOAC, Official methods of analysis of AOAC, 16thed. Associate of Official Chemists. Washington DC. (1995)