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

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Abstract

In this paper, in order to propose the standard cooking method of Soondae, which is one of most favorite traditional food sausage type in 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 crude 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

Soonedae 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 Gwangju 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 Chot MK and Jung JC [7].
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 meter(Model 340, Mettler-Toledo GmbH, Switzerland). All determinations were performed 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 105°C 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 (Kjelt@c®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±2°C for around 1 hr., air-cooled to 8-10°C, and cooked sample were cooled to room temperature at 21°C, 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 was 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 Moon-gun. Pumpkin Soondae were cooked a 100±2°C Pumpkin Soondae was evaluated for color of appearance, Sweet taste, salty taste, vinegar flavor, roasted sesame like, elasticity, umami, hardness, overall acceptability. Pumpkin Soondae were cooked a 100±2°C

2.7. Methods

Fresh boneless pork trim, pork fat, pork inside round, pork blood(seonji), 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 ham addition, chopped garlic, chopped 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

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pork intestine</td>
<td>100g</td>
</tr>
<tr>
<td>Pork Blood(seonji)</td>
<td>1 cup</td>
</tr>
<tr>
<td>Pork inside</td>
<td>100g</td>
</tr>
<tr>
<td>Glutinous rice</td>
<td>1 cup</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Crude Protein (%)</th>
<th>Dietary Fiber (%)</th>
<th>Salinity (%)</th>
<th>pH</th>
<th>Moisture (%)</th>
<th>Crude Fat (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>P5</td>
<td>16.8±0.1</td>
<td>11.9±0.0</td>
<td>2.30±0.0</td>
<td>6.20±0.0</td>
<td>70.9±0.0</td>
</tr>
<tr>
<td>P1</td>
<td>9.5±0.1</td>
<td>5.3±0.0</td>
<td>2.30±0.0</td>
<td>6.20±0.0</td>
<td>56.3±0.0</td>
</tr>
<tr>
<td>P2</td>
<td>10.2±0.1</td>
<td>9.8±0.0</td>
<td>6.30±0.0</td>
<td>70.9±0.0</td>
<td>11.3±0.0</td>
</tr>
<tr>
<td>P3</td>
<td>8.4±0.0</td>
<td>7.5±0.0</td>
<td>6.28±0.0</td>
<td>56.3±0.0</td>
<td>24.4±0.0</td>
</tr>
</tbody>
</table>

3.1. Proximate Composition of Pumpkin Soondae

Table 2. Shows the results of analysis. The general components of the pumpkin soondae 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, 6.20% pH. It shows superior characteristics in terms of nutritional components than other comparative groups.

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

<table>
<thead>
<tr>
<th></th>
<th>Colour</th>
<th>Sweetch</th>
<th>Saltt</th>
<th>Vingen</th>
<th>Rastese</th>
<th>Elatic</th>
<th>Umami</th>
<th>Har dnes</th>
<th>Over all</th>
<th>aceptabil ity</th>
</tr>
</thead>
<tbody>
<tr>
<td>P</td>
<td>6.33±1.9</td>
<td>7.33±2.2</td>
<td>4.9±1.5</td>
<td>4.9±1.5</td>
<td>6.25±0.0</td>
<td>6.23±0.9</td>
<td>7.09±0.2</td>
<td>5.43±0.9</td>
<td>6.68±1.3</td>
<td>7.3±1.3</td>
</tr>
<tr>
<td>S</td>
<td>6.15±1.0</td>
<td>5.35±0.0</td>
<td>6.30±1.0</td>
<td>6.1±1.0</td>
<td>4.78±1.3</td>
<td>6.01±0.1</td>
<td>5.63±0.1</td>
<td>7.21±0.1</td>
<td>5.24±0.2</td>
<td>3.0±2.0</td>
</tr>
<tr>
<td>F1</td>
<td>5.25±1.5</td>
<td>4.82±1.0</td>
<td>7.82±2.0</td>
<td>6.3±2.0</td>
<td>5.22±0.1</td>
<td>5.15±0.1</td>
<td>5.68±0.1</td>
<td>7.32±1.9</td>
<td>5.51±0.1</td>
<td>2.0±2.0</td>
</tr>
<tr>
<td>F2</td>
<td>6.16±1.2</td>
<td>6.16±0.1</td>
<td>7.75±1.2</td>
<td>6.2±0.1</td>
<td>4.84±1.1</td>
<td>4.84±1.1</td>
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<td>4.84±1.1</td>
<td>4.84±1.1</td>
<td>4.84±1.1</td>
</tr>
<tr>
<td>F3</td>
<td>6.16±1.2</td>
<td>6.16±0.1</td>
<td>7.75±1.2</td>
<td>6.2±0.1</td>
<td>4.84±1.1</td>
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<td>4.84±1.1</td>
<td>4.84±1.1</td>
</tr>
</tbody>
</table>

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 by 3 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 as new product in Soondae Market

**References**


