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Effect of carcass marination using different concentrations of soy sauce on consumer acceptance and sensory traits of samgyetang (korean ginseng chicken soup) (#63)

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Introduction

Samgyetang is an authentic Korean ginseng chicken soup made up of whole carcass of 30-day-old cross broiler (Ross x HyLine White), stuffed with glutinous rice, ginseng and other herbs. The quality of Samgyetang depends on the recipe and cooking method (traditional boiling or high pressure-high temperature with/without pre-cooking) [1,2]. There is still limit of information regarding the optimum use of soy sauce for carcass marination on the acceptability of Samgyetang. Soy sauce marination improves the aroma of chicken breast [3]. Therefore, the objective of this study was to observe the effect of different concentrations of soy sauce used for carcass marination on consumer acceptance and sensory traits of Samgyetang.

Methods

Fresh/chilled carcasses of 30-day-old broilers were purchased at local poultry processor one day postmortem. The marinade was made from soy sauce with different proportion in water (0%, 25%, 50%, w/w) and 3% (w/w of marinade) sodium tripolyphosphate. Carcasses were soaked in marinade for 1 h at 4°C, drained for 30 min and stuffed with 30 g glutinous rice, one ginseng, two dried jujubes and 2 cloves of garlic that were wrapped with rice paper. Chicken feet stock, table salt (0.5% w/v), monosodium glutamate (0.2% w/v), garlic powder (0.1% w/v) and ginseng powder (0.15% w/v) were used for preparing the broth. The stuffed carcasses and broth were put into retort-pouches, sealed and subjected to retort processing until F_0 8 was achieved. Acceptance survey for appearance, taste, saltiness, flavor, texture, juiciness and overall acceptance of both meat and broth of Samgyetang was performed along with Quantitative descriptive analysis (QDA) for umami, bitterness, saltiness, soy sauce flavor, chicken meat flavor using 25 untrained panelists and 12 trained panelists, respectively. Each panelist evaluated 3 Samgyetang samples with different concentration of soy sauce marination (0%, 25%, 50%, w/w). QDA intensity scale ranged from 1 (very weak) to 7 (very strong) and fresh/chilled group was given a 4-score (medium) as control, while acceptance score ranged from 1 (dislike very much) to 7 (like very much). Data were subjected to one-way analysis of variance (ANOVA). Analyses were performed using R-version 3.3.3 with "agricolae" library (The R-foundation for Statistical Computing, Austria). The statistical significance of the differences between means from different treatments was determined by Duncan's multiple range test ($p < 0.05$).

Results

The QDA revealed that there were no significant effects of soy sauce marination on umami, bitterness and chicken meat flavor. Soy sauce marination in-

creased saltiness and soy sauce flavor of Samgyetang, regardless of concentration differences (Table 1). The presence of sodium in soy sauce might add the saltiness of Samgyetang, particularly in the meat part. Table 1. Quantitative descriptive scores of soy sauce marinated Samgyetang

Variable	Control (0%)	25%	50%	Standard error
Umami	3.45	4.05	3.95	0.10
Bitterness	3.05	2.90	3.05	0.09
Saltiness	2.20 ^b	3.25 ^a	3.95 ^a	0.12
Soy sauce flavor	3.40 ^b	4.05 ^a	4.20 ^a	0.13
Chicken meat flavor	2.65	2.85	2.85	0.10

^{a-b} Mean values are significantly different ($p < 0.05$).

Soy sauce marination increased the acceptability of taste, flavor, meat texture, juiciness and overall impression of Samgyetang (Table 2). However, soy sauce marination did not influence the acceptability of appearance and saltiness, indicating that the dark color and saltiness of soy sauce marinated Samgyetang is still acceptable and similar with control. Carcass marination using 50% soy sauce solution resulted in comparable acceptance with that using 25% soy sauce. Therefore, higher concentration of soy sauce does not seem necessary to further increase the acceptance of soy sauce marinated Samgyetang. Table 2. Consumer acceptance towards soy sauce marinated Samgyetang

Variable	Control (0%)	25%	50%	Standard error
Appearance	4.60	4.30	4.40	0.10
Taste	3.85 ^b	4.65 ^a	4.40 ^{ab}	0.12
Saltiness	4.35	5.10	4.60	0.09
Flavor	4.00 ^b	4.75 ^a	4.85 ^a	0.08
Meat texture	3.75 ^b	4.60 ^a	4.70 ^a	0.09
Meat juiciness	3.55 ^b	4.25 ^a	4.90 ^a	0.13
Overall	3.75 ^b	4.60 ^a	4.55 ^a	0.12

^{a-b} Mean values are significantly different ($p < 0.05$).

Conclusion

The use of marinade containing 25% soy sauce can be applied for manufac

Notes

turing a new Samgyetang product with acceptable quality.

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