

EFFECT OF MIXTURE RATIO OF PORK AND DUCK MEAT ON QUALITY CHARACTERISTIC IN COMMUNUTED SAUSAGE

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Abstract – This study was conducted to investigate the effect of mixture ratio of pork and duck meat on quality characteristic in comminuted sausage. Moisture content of control was significantly ($p<0.05$) higher compared to the others treatment. However, protein and fat contents was significantly lower ($p<0.05$) in control compared to the others treatment. Moisture content of control (100% duck meat) was significantly ($p<0.05$) higher compared with T1 (100% pork meat) whereas protein and fat content was significantly ($p<0.05$) lower in control compared with T1. Therefore, this results suggests that moisture content and hardness of comminute sausage were affected by mixture ratio of raw meat.

Key Words – Duck, Hardness, Pork

I. INTRODUCTION

In Korea, duck meat has known in healthy well being foods. This is reason that because of higher unsaturated fatty acid contents compared to saturated fatty acid contents in duck meat [1]. On the other hand, the meat industry is many trying to offer better meat products for consumers. Generally, non-emulsion type sausage in Korea has being called is ‘press ham’ or ‘mixed press ham’. They are low quality sausages products such as press ham distributed in Korea meat market with low price. Recently, it was found that duck sausages with 20% fat content obtained higher scores for sensory traits compared with sausages of 30 and 40% fat content [5]. Nevertheless, the studies on the sausage from beef, pork, and chicken many tried [2-4] but data on duck meat sausage has been a little reported [5].

Therefore, the objective of this study was to investigate the effect of mixture ratio of pork and duck meat on quality characteristic in comminuted sausage.

II. MATERIALS AND METHODS

Three batches of sausages (20 kg of meat batter for each batch) were manufactured. Treatments were subjected to 100% duck meat (C), 0% duck meat + 100% pork meat (T1), 50% duck meat + 50% pork meat (T2), 40% duck meat + 60% pork meat (T3), and 30% duck meat + 70% pork meat (T4), respectively. Meat was prepared with a meat grinder of 5 mm diameter. All materials were treated with mixing, curing/ripening, stuffing, and cooking/smoking. Then, characteristics of sausage quality were analyzed to chemical compositions and texture.

III. RESULTS AND DISCUSSION

Table 1 Chemical compositions of comminute sausage manufactured with different mixture ratio of pork and duck meat

Treatments*	Moisture %	Protein %	Fat %
C	68.50 ^A	19.37 ^C	10.06 ^E
T1	65.33 ^D	19.85 ^A	12.25 ^A
T2	66.99 ^B	19.64 ^B	10.99 ^C
T3	67.09 ^B	19.70 ^B	10.76 ^D
T4	66.40 ^C	19.84 ^A	11.28 ^B
SEM	0.24	0.04	0.17

*C, 100% duck meat; T1, 100% pork meat; T2, 50% duck meat + 50% pork meat; T3, 40% duck meat + 60% pork meat; T4, 30% duck meat + 70% pork meat.

^{A-E}Means with different letters within the same column differ ($p<0.05$).

Table 1 shows chemical composition of comminuted sausage manufactured with different mixture ratio of pork and duck meat. Moisture content of control was significantly ($p<0.05$) higher compared to the others treatment. However, protein and fat content was significantly lower ($p<0.05$) in control compared to the others

treatment. Moisture content of control (100% duck meat) was significantly ($p<0.05$) higher compared with T1 (100% pork meat) whereas protein and fat content was significantly ($p<0.05$) lower in control compared with T1. These results shown that moisture and protein contents of comminute sausage was affected by mixture ratio of raw meat.

Table 2 Changes in hardness of comminute sausage manufactured with different mixture ratio of pork and duck meat during cold storage

Treatments*	Storage time (weeks)					SEM
	1	2	3	4	5	
C	2.26 ^A	2.50 ^{AB}	2.44 ^B	2.38 ^B	2.38 ^{DC}	0.04
T1	2.48 ^{Ab}	2.54 ^{ABb}	2.72 ^{Aab}	2.86 ^{Aa}	2.57 ^{BCb}	0.04
T2	2.34 ^{Ab}	2.46 ^{Bab}	2.48 ^{ABat}	2.66 ^{Aa}	2.67 ^{ABa}	0.04
T3	2.34 ^{Ab}	2.68 ^{Aa}	2.72 ^{Aa}	2.72 ^{Aa}	2.81 ^{Aa}	0.04
T4	1.78 ^{Bb}	2.17 ^{Ca}	2.25 ^{Ba}	2.35 ^{Ba}	2.17 ^{Da}	0.04
SEM	0.05	0.04	0.05	0.05	0.05	

*C, 100% duck meat; T1, 100% pork meat; T2, 50% duck meat + 50% pork meat; T3, 40% duck meat + 60% pork meat; T4, 30% duck meat + 70% pork meat.

^{A-E}Means with different letters within the same column differ ($p<0.05$).

^{a-b}Means with different letters within the same row differ ($p<0.05$).

Table 3 Changes in springiness of comminute sausage manufactured with different mixture ratio of pork and duck meat during cold storage

Treatments*	Storage time (weeks)					SEM
	1	2	3	4	5	
C	11.43 ^d	14.38 ^c	18.79 ^{Ai}	19.05 ^B	17.18 ⁱ	0.45
T1	11.37 ^e	14.76 ^d	18.47 ^{AB}	20.42 ^A	17.58 ⁱ	0.48
T2	11.48 ^e	14.54 ^d	18.44 ^{AB}	20.31 ^A	17.58 ⁱ	0.48
T3	11.81 ^e	14.46 ^d	18.70 ^{AB}	20.82 ^A	17.71 ⁱ	0.49
T4	11.64 ^e	14.98 ^d	18.22 ^{Bt}	20.62 ^A	17.14 ⁱ	0.47
SEM	0.10	0.11	0.08	0.13	0.10	

*C, 100% duck meat; T1, 100% pork meat; T2, 50% duck meat + 50% pork meat; T3, 40% duck meat + 60% pork meat; T4, 30% duck meat + 70% pork meat.

^{A-C}Means with different letters within the same column differ ($p<0.05$).

^{a-b}Means with different letters within the same row differ ($p<0.05$).

Table 2 shows changes in hardness of comminute sausage manufactured with different mixture ratio of pork and duck meat during cold storage. Hardness of all samples was not showed definite tendency during cold storage. Also, hardness of among all treatments was not observed linear tendency as different mixture ratio of pork and

duck meat. However, cold storage since 3 weeks, hardness of control (100% duck meat) was significantly ($p<0.05$) decrease compared to the others treatment. This data shows that hardness of samples was related with moisture content.

On the other hand, springiness of all samples had showed increasing until 4 weeks during cold storage and springiness value of control was significantly ($p<0.05$) lower compared to the others treatment (Table 3). These results shown that hardness of comminute sausage was affected by mixture ratio of raw meat.

IV. CONCLUSION

Therefore, our data suggests that hardness was related with moisture content in comminute sausage manufactured with different mixture ratio of pork and duck meat.

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