COMPARISON OF DIFFERENT PARTS OF LAMB: CHEMICAL COMPOSITION AND SENSORY

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Abstract –This study aimed to investigate the differences in meat quality characteristics among different body parts of *Dorper* sheep. The muscles from M. *Longissimus dorsi* (LD) and M. *Semimembranosus* (SM) were measured for their chemical composition and consumer sensory of lamb meat. The results showed that LD had a significantly higher intramuscular fat content and were more acceptable for consumers. Differences in juiciness and flavour between the meats types were probably affected by differences in cooking methods .Our results confirm the growing concerns that LD muscle would increase consumer eating quality.

Key Words –*Longissimus dorsi*, cooking methods, overall acceptance

I.   INTRODUCTION

With increasing demand for lamb meat in China, more consumers seek more diverse diet and nutritional value. However, the perception of healthiness and sensory enjoyment are a key driver strongly influencing the demand of lamb in China, and willingness to pay decisions of consumers. There has not been a systematic and comprehensive review of Chinese meat production and consumption status, eating quality requirements for lamb meat (Mao et al. [1]). When we consider eating quality, the parts of the distinction are very less, since the nutritional value of different parts of lamb has not yet studied completely and deeply. Therefore it is necessary to elucidate the major chemical composition and sensory traits like tenderness, juiciness, flavour and overall acceptance.

II.   MATERIALS AND METHODS

Two different types of muscles (LD and SM) were excised from each carcass (total of 5 carcasses, n = 5) 30 min postmortem from *Dorper* sheep (5 months of age). All muscles were trimmed free of fat and any visible connective tissue. The chemical composition of lamb meat was determined following standard AOAC [2] methods. Analysis of samples was performed in triplicate. Sensory analysis was performed by groups of trained LD and SM muscle samples from 5 animals (12 panelists), divided between two cooking methods (roasting and hot pot).The panelists were asked to assess the following attributes: tenderness, juiciness, flavor and overall acceptance.
Data were subjected to analyses of variance by a one-way analysis with SAS software (SAS Institute Inc., [3]). The differences between means were conducted by Duncan's multiple range test (p<0.05).

III.   RESULTS AND DISCUSSION

For chemical composition from two meat types (Table 1).There was no difference (p>0.05) in crude protein and ash, while the intramuscular fat content was lower in the SM muscle than in the LL muscle. LD muscle is easier to accumulate fat than SM muscle. This could attribute to the movement of behavior, that is, large amount of exercise leg muscles, its relatively small content of intramuscular fat deposition.

The panelists received additional training in the assessment of tenderness, juiciness, flavor and overall acceptance based on the Meat Standards Australia sensory system, according to Pannier et al. [4]. Meat samples from SM showed significantly lower overall acceptance compared with LD for both cooking methods (Fig. 1). LD showed the highest flavour intensity, which is most obvious for the roasting. The LD muscle of the hotpot was the most juice, while with regard to tenderness no significant differences in the LD and SM were observed between the cooking methods. The differences between LD and SM within each cooking method reflect to a large extent the preferences of consumers. Considering the consumers' interest in different parts of lamb products, a special attention for better meat division is necessary to reach good economic benefits.

Table 1 Chemical composition of LD and SM meat samples (%, dry matter)

Items	Parts		SEM	P-Value
	LD	SM		
Crude protein	80.50	86.44	2.41	0.06
Intramuscular fat	9.97a	6.26b	1.32	0.02
Ash	5.93	5.74	0.26	0.49

[a,b]Different superscript letters within the same row indicate significant difference (p<0.05).
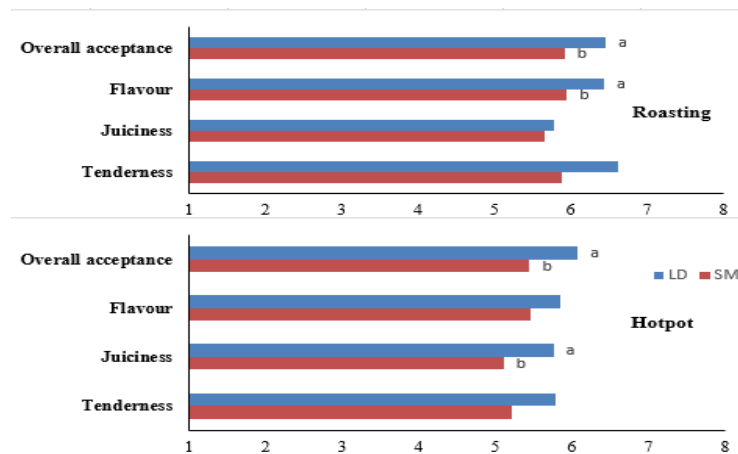Data without superscripts indicate no significant differences (p>0.05).

Figure 1. Mean values for LD and SM of taste panel evaluation

IV.   CONCLUSION

Distinct differences in intramuscular fat content and overall acceptance of lamb can be expected, depending on the body parts and cooking methods. Based on a series of objective measurements, LD muscle could be well received and popular in this study.

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