Physicochemical, histological and sensory properties of pork from cheek and neck

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Abstract

Pork is one of main protein source in Taiwan. The meat processing plants try to develop new products for supplying market. Recently, most packing plants supply two kinds of fresh pork, which are located at cheeks and neck. They are called as chrysanthemum meat and matsukasa meat, respectively. The aim of this study is to investigate the physicochemical, histological and sensory properties of these two parts of pork. The results are as follows: Moisture and crude fat contents in neck meat are higher than those in cheek meat, reversely; crude protein content in neck meat is lower than that in cheek meat. Size of muscle fibers of neck meat is finer than those of cheek meat. Shear force test is found that cheek meat was higher than neck meat; it means the neck meat is more tender than cheek meat. However, the consumers prefer the chewiness of mouth feeling of neck meat to cheek meat. The sensory test scores of tenderness, flavor, juiciness, texture, mouth feeling and overall acceptability for neck meat are higher than those scores for the cheek meat. The fatty acid compositions of these two pork samples were also analyzed by HPLC.

Introduction

Pork is one of main protein source in Taiwan. The meat processing plants always try to develop new products for supplying market. Recently, most packing plants supply two kinds of fresh pork which are located cheeks and neck. They are called chrysanthemum meat and matsukasa meat, respectively. The aim of this study was to investigate the physicochemical, histological and sensory properties of these two parts of pork.

Materials and methods

Raw meat: was taken from the cheeks (masseter) and neck (sternohyoideus) which were offered by Shang-Li Meat Plant. Chemical composition analyses: the moisture, crude protein and crude fat were analyzed according to the methods of AOAC (1984).

Muscle tissue was transverse sectioned and stained with H & E stain. Then the muscle fibers were measured its fiber size.

Shear value was measured with Rheometer (RE-3305, Yamaden Co., Japan). The meat samples were wrapped in PE bag and cooked in water bath at 80□ for 25 min. The measuring conditions were Force: 2Kg, loading stage elevated speed:5mm/sec, prob: No. 10, recording speed:0.05sec.

Fatty acid composition was analyzed by HPLC according to the method described by Folch et al. (1957). Sensory property was tested by 30 students of our lab using Hedonic system. The data were analyzed by General linear method procedure using Statistical analysis system (Mintab 10 software).

Results and discussion

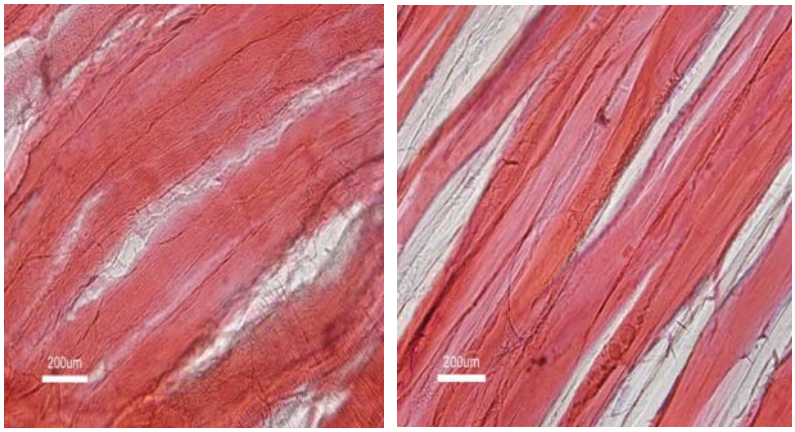
Chemical compositions of meats were shown in Table 1. From the result we could find fat and moisture contents for neck meat were higher than those of cheek meat. It indicates the neck meat is more juicier and tender than cheek meat.

Table 1. Chemical compositions of the cheek meat and neck meat

	Moisture (%)	Cured protein (%)	Cured fat (%)
Cheek meat	65.7±1.95	19.2±0.70	4.8±0.13
Neck meat	73.4±1.15	13.0±0.61	7.12±0.06

N=8

Figure 1 indicated the photograph of muscle tissue and muscle fiber size of neck meat(360um) was finer than that of cheek meat(400um).



Cheek meat Neck meat

Figure1. Comparison on muscle fiber of cheek meat and neck meat (40X).

Table 2 indicated that shear values for neck and cheek meats. From the result we found the shear value for cheek meat was higher than neck meat. Fatty acid compositions From the result we can find C16:0, C18:0, and C20:4 in the cheek meat were higher than those of neck meat, but,C18:2 and C18:3 in the neck meat were higher than those of cheek meat.

Table 2. Comparison of the shear values for cheek meat and neck meats

Shear value	Cheek meat	Neck meat
	814±68.24[a]	513±71.2[b]

N=8

In Table 3.Sensory testing scores for the meats of neck and cheek were compared with belly and loin, the overall acceptance for neck meat was the highest and then cheek meat, belly and loin in descending order. From panel test scores we can find the Taiwanese consumers' preference in meat. Most consumers prefer to eat the meat having good chewiness of mouth feeling, even the meat is very tender. Therefore, some meat

plants sell neck meat (two pieces per head carcass) at higher price. The neck meat is just cured small amount of salt and white pepper and roasted in oven for a short time. The meat becomes very delicious.

Table 3. Comparison of the different groups on sensory evaluation of pork

	Tenderness	Flavor	Juiciness	Texture	Mouth feeling	overall acceptability
Cheek meat	4.90^{ab}	5.10^{b}	5.00^{ab}	4.65^{b}	5.05^{b}	5.00^{b}
Neck meat	5.75^{a}	5.95^{a}	5.75^{a}	5.65^{a}	6.05^{a}	6.45^{a}
Belly	4.50^{bc}	4.95^{bc}	4.85^{b}	4.40^{b}	4.55^{bc}	4.65^{bc}
Loin	3.75^{c}	4.25^{c}	3.30^{c}	3.70^{b}	4.00^{c}	4.00^{c}

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