



# QUALITY CHARACTERISTICS OF BUFFALO CHEEK MEAT \*

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Variety meats like head meat, heart and tripe are lower valued portions of the carcass, which have low palatability attributes. Meat from the head of buffaloes forms an important portion of these lower priced variety meats, of which cheek meat forms a major component.

India has the largest livestock population in the world but most of the meat produced in the country is sold as fresh unchilled meat. Only a small proportion, less than three percent, is sold as processed meat. Hence there exists a huge potential for marketing the lower-priced portions of the carcass in the form of processed value-added meat products.

Studies on the physicochemical and microbiological qualities of buffalo cheek meat are sparse. Kondaiah *et al.* (1986) suggested detailed microbiological studies of variety meats from buffaloes considering their floor handling practice leading to contamination. Hence the present study was undertaken to determine the physicochemical and microbiological qualities of fresh buffalo cheek meat.

Buffalo cheek meat samples (n=8) collected from Corporation Slaughter House, Perambur, Chennai were used for the present study. The practice at the slaughter house was to pool the heads of the slaughtered buffaloes (after removing the hide) at one place and the head meat was sold thereafter. The cheek meat samples were collected at random and transported in sterile polythene bags in a thermocole container to the Department of Meat Science and Technology, Madras Veterinary College, Chennai where they were freed from separable fat and connective tissue.

A portion of 150 g of each meat sample was analysed for (1) pH using a combination glass electrode pH meter (2) thiobarbituric acid number (TBA no.) using a modified method by Strange *et al.* (1977) (3) cooking loss (Boleman *et al.*, 1995) and (4) microbiological quality parameters, viz. total viable count, streptococcal count, staphylococcal count and coliform count (APHA, 1976).

**Table 1.** Quality characteristics of buffalo cheek meat

Parameter	Mean $\pm$ (SE)
pH	6.46 $\pm$ 0.02
Thiobarbituric Acid number(TBA)	0.084 $\pm$ 0.01
Cooking Loss (percent)	25.75 $\pm$ 1.84
Total Viable Count (cfu/g)	5.93 $\pm$ 0.25
Streptococcal count (cfu/g)	5.39 $\pm$ 0.16
Staphylococcal count (cfu/g)	4.14 $\pm$ 0.28
Coliform count (cfu/g)	3.25 $\pm$ 0.16

The mean ( $\pm$  SE) values for the quality characteristics of buffalo cheek meat are presented in the table. The mean pH of buffalo cheek meat was 6.46  $\pm$  0.02. Kondaiah *et al.* (1986) reported a similar pH value for the head meat of buffaloes, and Talmant and Monin (1986) observed an ultimate pH of approximately 6.2 for bovine masseter muscle. Higher pH values obtained in the present study for buffalo cheek meat could be attributed to the rapid setting of rigor mortis in active and well nourished muscles, as opined by Gracey and Collins (1992).

The TBA assay is commonly used to assess the extent of lipid oxidation in foods (Nollet and Toldra, 2009). The mean TBA no. of buffalo cheek meat was 0.084 $\pm$  0.01.

Kandasamy (1983) reported slightly higher mean TBA no. for fresh carabeef. Witte *et al.* (1970) reported an inverse relationship between TBA no. and pH, which might have contributed to a lower TBA no. in buffalo cheek meat. The mean cooking loss (per cent) for buffalo cheek meat was  $25.75 \pm 1.84$ . Kondaiah *et al.* (1986) reported similar cooking release volume for buffalo head meat.

The mean total viable count of buffalo cheek meat was  $5.93 \pm 0.25$ . This count was lower than that reported for buffalo semimembranosus muscle by Sureshkumar (1998). The buffalo cheek meat had a higher staphylococcal count, lower coliform count and an approximately similar streptococcal count as reported by Rao and Ramesh (1988) for minced sheep meat from retail shops. This indicates that even the floor handling practice has not resulted in much contamination of buffalo cheek meat. This is probably due to the fact that the masseter muscle is covered by a thick epimysium on the outside and is closely adhered to the skull on the medial aspect, exposing the meat only at the time of deboning. Moreover the samples for microbiological evaluation were taken after removal of the connective tissue.

### Summary

A study was undertaken to determine the physicochemical and microbiological qualities of fresh buffalo cheek meat. The results of this study characterise buffalo cheek meat as having relatively higher pH and lower TBA no. and cooking loss. The degree of microbial contamination was not as high as expected by their floor handling practice.

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