CHEMICAL COMPOSITION OF GOAT MEAT: THE EFFECT OF BREED AND CASTRATION

N.M.W. PRATIWI, P.J. MURRAY, J. SUMARMONO and D.G. TAYLOR

School of Animal Studies, University of Queensland, Gatton Campus, QLD 4343

Many studies over the past three decades have been conducted on meat quality, but not many on meat from goats. In general, the quality of meat and therefore its chemical composition from an animal is influenced by breed, sex, age, castration, slaughter weight, muscle type, and feeding condition of the animal (Sanudo, 1997; Lawrie, 1991; Jeremiah *et al*. 1999). This study was designed to determine if chemical composition of goat meat was influenced by breed and castration.

The meat came from 20 six month old bucks. Five entire Boer bucks (BE), 5 castrated Boer bucks (BC), 5 entire feral bucks (FE) and 5 castrated feral bucks (FC) were slaughtered at 30 kg live weight. They all grazed on pasture and had unlimited access to goat pellets and grassy lucerne hay. *Semimembranosus* muscle was collected for proximate analysis (moisture, protein, ether extract and ash) as per AOAC (1990). Each analysis was duplicated for meat sampled from each animal.

Table 1. The effect of breed and castration on average moisture, crude protein, ether extract and ash as a percentage of the weight of fresh meat

Proximate components (%)	Mean				SE
	BC	BE	FC	FE	
Moisture	76.21^{ba}	77.54^{a}	74.90^{b}	75.98^{ba}	0.51
Protein	19.74	19.31	20.13	19.07	0.58
Fat (ether extract)	1.51^{a}	0.80^{b}	1.36^{a}	1.33^{a}	0.12
Ash	0.93	0.94	0.99	1.07	0.06

^{a,b,c} means within the rows with different superscripts are significantly different ($P<0.05$)

Breed and castration had no significant effect on the percentage of protein and ash, but there were significant differences in moisture ($P<0.05$) and intramuscular fat content ($P<0.01$) of *Semimembranosus* muscle. The moisture content of the meat was affected by breed and castration, with meat from entire Boer bucks having a higher percentage than castrated Boer and feral bucks and entire feral bucks. Castrated animals for both breeds produced more intramuscular fat than entire goats. The highest percentage of fat was found in meat from castrated Boer bucks.

These observation confirm that the moisture content of *Semimembranosus* muscle is influenced by breed and castration while intramuscular fat content is more affected by castration. The intramuscular fat content was similar to previous studies using other animal species (Lawrie, 1998).

AOAC (1990). 'Official Methods of Analysis'. 15th Edition. (Association of Official Analytical Chemists, Washington, DC).

JEREMIAH, L.E., GIBSON, J.P., GIBSON, L.L., BALL, R.O., AKER, C. and FORTIN, A. (1999). *Food Res. Int*. **32**, 59-71.

SANUDO, C., CAMPO, M.M., SIERRA, I., MARIA, G.A., OLLETA, J.L., SANTOLARIA, P. (1997). *Meat Sci*. **46**, 357-365.

LAWRIE, R.A. (1998). 'Meat Science'. 6th Edition. (Cambridge: Woodhead Publishing Ltd).

Email: nmw@sas.uq.edu.au