EFFECTS OF SLAUGHTERING METHODS (SKINNING, SCALDING, AND SINGEING) ON GOAT MEAT QUALITY

P. O. Fakolade* *Osun State Ibadan, OSUN 234101 Nigeria*,

*patience.fakolade@uniosun.edu.ng

I. OBJECTIVES

The type of slaughtering processing methods usually practiced in developing countries, especially Nigeria, could affect meat quality and expose consumers to health hazard, if care is not taken. In Nigeria, the best type of slaughtering is the singeing method, and it is not hygienically practiced.

II. MATERIALS AND METHODS

Thirty-six West Africa Dwarf 1-year-old male goats were used, purchased from the teaching and research farm of Osun State University, Nigeria. They were reared for 2 wk, fed growers mash, and allowed to graze in the paddock with enough water. Nine animals each were exposed to 4 different slaughtering processing methods: skinning (T1), scalding (T2), singeing with kerosene (T3), and singeing with gasoline (T4). Thigh muscles from each treatment were replicated 5 times to determine their proximate and mineral compositions, palatability scores, polycyclic aromatic hydrocarbons (PAH), and phenol status in a factorial design.

Table 1.
Proximate, mineral, PAH, and phenol composition of goat meat slaughtered using different methods

Parameters	T1	T2	T3	T4	SEM
Protein %	21.16^{a}	22.41^{a}	17.78^{b}	20.42^{ab}	0.98
Ash %	0.98^{b}	0.99^{b}	1.06^{a}	1.04^{a}	0.23
Either Extract %	10.83^{a}	10.27^{a}	8.70^{b}	8.38^{b}	0.40
Moisture %	69.37^{b}	68.39^{b}	70.07^{ab}	73.88^{a}	1.05
Fe %	0.89^{c}	0.99^{c}	1.74^{a}	1.26^{a}	0.79
Mg %	112.56^{c}	112.94^{c}	140.56^{a}	122.06^{b}	2.50
P %	340.33^{c}	342.56^{c}	491.89^{a}	384.55^{b}	18.52
PAH (µg/g)	0.0003^{c}	0.0003^{c}	0.007^{a}	0.006^{a}	0.008
Phenols(µg/g)	0.012^{b}	0.013^{b}	0.139^{a}	0.129^{ab}	0.010

- Means of different superscripts along the column are significantly different ($P < 0.05$).
- T1 = Skinning; T2 = Scalding; T3 = Singeing with Kerosine; T4 = Singeing with gasoline.

III. RESULTS

T1 and T2 methods of slaughtering gave the highest significant ($P < 0.05$) water-holding capacity and lowest cooking loss, with 73.95% and 72.23% of T1 and T2 compared with 59.96% and 64.58% of T3 and T4, respectively. T1 and T2 had the highest significant ($P < 0.05$) value of protein and either extract and mineral evaluation and the lowest values for PAH and phenols. T2 processing methods had the highest palatability score, followed by T1 slaughtering methods.

IV. CONCLUSION

T2 had reduced PAH, higher protein, higher water-holding capacity, lower cooking loss, and higher acceptability score. Scalding methods (T2) should be encouraged in Nigeria's abattoirs to improve meat quality and consumers' health status, though this method take time to process, except with a scalding machine.

Keywords: skinning, scalding, singeing, polycyclic aromatic hydrocarbons, phenols