

# Microbiological and physicochemical parameters of beef and lamb meat produced in abattoirs in Northern Greece. Preliminary results.

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## 1. Introduction

Meat quality is a prerequisite for the marketing of meat and meat products. In Greece, the characterization of meat quality relies mostly in empirical characteristics, with scarce scientific information concerning objective quality characteristics. The scope of this research was to assess the quality of beef and sheep meat produced in abattoirs of Northern Greece by certain hygiene and quality markers.

## 2. Materials and methods

A total of 88 and 166 samples were collected from bovine and sheep carcasses respectively and were examined for surface contamination (total mesophilic, total psychrophilic and coliform counts). Moreover, 110 beef samples and 37 sheep samples were collected from cold carcasses and were examined for their physicochemical properties (pH, moisture, total fat and total proteins).

**Table 1.** Physicochemical analyses of lamb meat (average in bold, standard deviation in parentheses and italics)

Lamb	pH	Humidity	Total fat	Total proteins
Abattoir 1	<b>6.26</b> ( <i>0.14</i> )	<b>63.8%</b> ( <i>3.0%</i> )	<b>4.0%</b> ( <i>1.2%</i> )	<b>19.8%</b> ( <i>4.4%</i> )
Abattoir 2	<b>6.07</b> ( <i>0.29</i> )	<b>61.4%</b> ( <i>7.7%</i> )	<b>9.9%</b> ( <i>6.4%</i> )	<b>24.3%</b> ( <i>2.8%</i> )
Total	<b>6.17</b> ( <i>0.24</i> )	<b>63.2%</b> ( <i>4.5%</i> )	<b>5.4%</b> ( <i>4.1%</i> )	<b>20.8%</b> ( <i>4.5%</i> )

## 3. Results and discussion

In average, the cold bovine carcass hindquarter pH was 5.69, the diaphragm pH was 6.2, the forequarter pH was 5.77 and the liver pH was 6.43. The deviation was small, implying the repeatability of the slaughtering procedure and the uniform conditions in all animals slaughtered, not permitting different conditions of chilling. Differences were observed in total fat and proteins that were not statistically significant. The microbial counts were in average below the limits posed by the Commission Regulation (EC) No. 2073/2005. Concerning the microbial counts of the sheep carcass surface samples, the TMVC variation was larger in abattoir 1 than in abattoir 2; therefore, the production process is judged as inconsistent in abattoir 1, although in general the efficiency of its procedures could end up in a less contaminated sheep carcass.

## 4. References

Commission Regulation (EC) No. 2073/2005 of 15 November 2005 on microbiological criteria for foodstuffs. OJ L 338, 22.12.2005, pp. 1-26.  
 Krystallis A, Chrysoschoidis G, Scholderer J (2007). Consumer-perceived quality in 'traditional' food chains: the case of the Greek meat supply chain. *Appetite* 48(1):54-68.

