

Characterization of Volatile Compounds in Meat Lamb Fed in Different Algeria Pasture

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Abstract : Ruminant meat is an important source of nutrients and is also of high sensory value. However, the importance and nature of these characteristics depend on ruminant nutrition. The objective of this study is to assess the effect of two Algerian feeding systems applied in the steppic rearing area of Djelfa and in the highlands one of Tiaret on the growth performance of lambs and on their meat quality, especially on their aroma compounds of meat. At the beginning of the experiment, lambs had an average body weight of 34.04 kg, and 35.40 kg for the group reared at Highland (0% concentrate) and Steppe (30% concentrate), respectively. The incorporation of the concentrated feed in Steppe had a significant effect on slaughter weight compared to lambs fed only on pasture (Highland) (49.72 Kg vs. 42.06 Kg, $P < 0.05$). Beyond the first month, animals from the Steppe one showed better weight gains compared to those from Highland (14.32Kg vs. 8.02 Kg, respectively, $P < 0.05$). After slaughter, samples from the Longissimus thoracis were removed and analyzed. The results point to significant differences in the amounts of many of the predominant volatile compounds between both groups ($p < 0.05$), such as Hexanal, 2-methyl-3-furanthiol and nonanal (8.92 $\mu\text{g/kg}$ vs. 4.57 $\mu\text{g/kg}$), (8.88 $\mu\text{g/kg}$ vs. 7.45 $\mu\text{g/kg}$) and (2.09 $\mu\text{g/kg}$ vs. 1.02 $\mu\text{g/kg}$) associated with smells of green, boiling meat and orange fruit, respectively. These compounds, measured by olfactometry, derived from the oxidation of lipids and appear to be responsible for the characteristic flavor of lamb meat in the steppe compared to that generated by meat from animals from the Highland pastures. The Algerian Steppe ecosystem is very interesting for outdoor sheep breeding, which allows to obtain attractive sensory quality and in the production of typical lamb meat that can be considered as a label.

Keywords : flavour, growth performance, lamb meat, steppe pasture

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