

EFFECT OF HAIR SHEARING ON MEAT QUALITY TRAITS OF GROWING RABBITS UNDER HOT AMBIENT TEMPERATURE

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I. INTRODUCTION

High ambient temperature can cause heat stress on livestock animals which impairs homeostasis, challenges health status, and negatively affects productive performance. The rabbit is particularly sensitive to heat-stress, because its body is covered with fur, and it has few functional sweat glands which limit its ability to eliminate excess body heat [1]. Due to climate changes, time periods with high temperature have become more frequent, not only in tropical areas but also in temperate zones. Rabbit farming is negatively affected by this changing climatic scenario, thus requiring appropriate strategies to alleviate this issue. With this in mind, the present experiment tested the effectiveness of hair shearing to alleviate the negative effects of heat stress on rabbits, evaluating the impact on meat quality traits.

II. MATERIALS AND METHODS

A total of 150 five week-old weaned rabbits (Pannon Ka line) were housed in two rooms (2 rabbits/cage). Rabbits reared under normal temperature (20 °C) were furred (control: C group, n=50), whereas in the room with higher temperature (28 °C) there were two groups of rabbits: one was furred (H group, n=50), whereas in the other group rabbits were sheared (2 mm) on the back and on both sides of the body at 5, 7 and 9 weeks of age (HS group, n=50). Rabbits received the same commercial pelleted diet, water was provided *ad libitum*, and they were reared under 16h light. At 12 weeks, rabbits were electrically stunned and slaughtered. After chilling (24h at 4 °C), carcasses were dissected [2]. *Longissimus thoracis et lumborum* (LTL) muscles of 10 carcasses/treatment were freeze-dried and the proximate composition was determined [3]. Data were analysed by a one-way ANOVA with the experimental group as a fixed effect (significance: $P < 0.05$).

III. RESULTS AND DISCUSSION

Hot ambient temperature changed the proximate composition of rabbit LTL meat (Figure 1): non sheared rabbits displayed a lower lipids ($P < 0.05$) content, but a higher protein ($P < 0.05$) and ash ($P < 0.01$) ones, compared to the control rabbits. Hair shearing mitigated the effects of hot ambient temperature, since rabbits had a LTL meat with similar lipid content than the control. Conversely, results on protein and ash amounts were comparable among sheared and non-sheared rabbits. As a result of adaptive responses to heat stress, animals tend to reduce feed intake to decrease the production of metabolic heat [4]; in fact, in the results of the first part of the present research it was highlighted that high ambient temperature reduced feed intake of rabbits which, in turn, lowered their daily weight gain and thus body weight [5]. This of course has implications on carcass fat deposition, carcass yield, intramuscular fat content and overall meat chemical composition [4], therefore explaining findings of the present work.

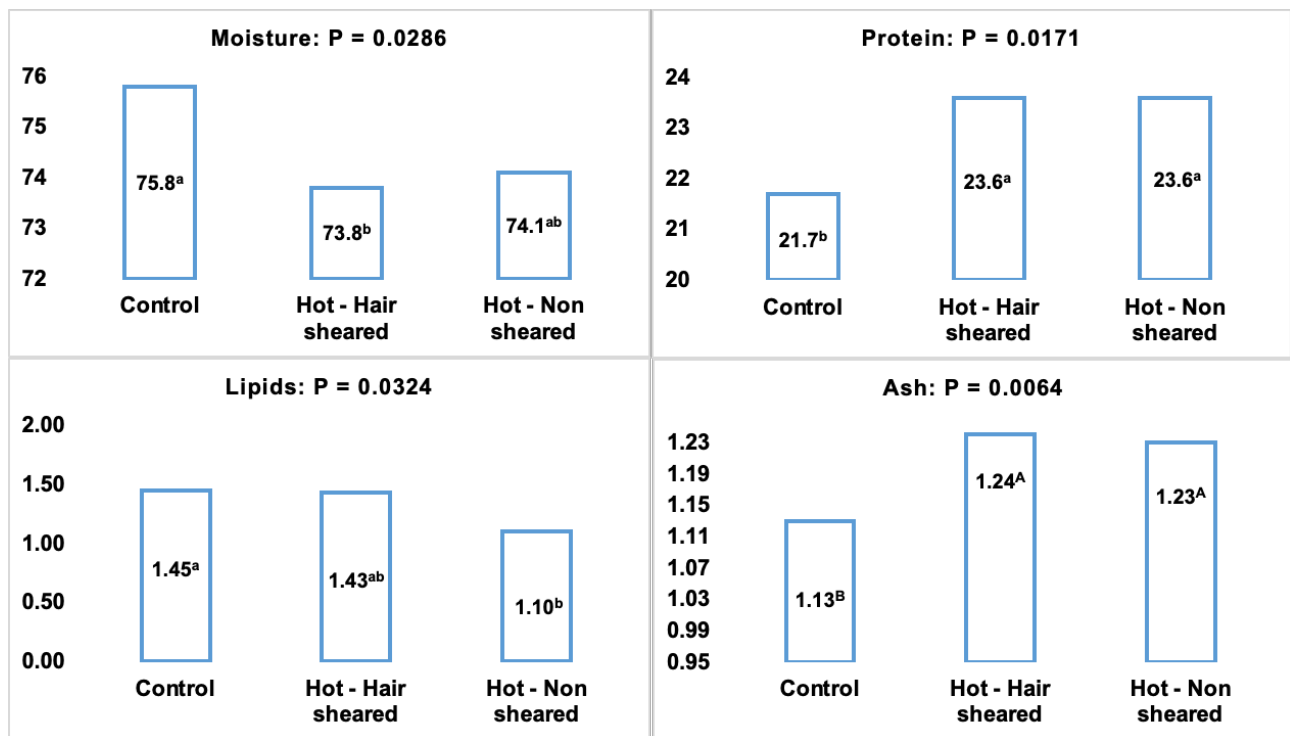


Figure 1. Proximate composition of the longissimus thoracis et lumborum meat (g/100 g meat) of furred and sheared growing rabbits housed in rooms with normal or high ambient temperature; (^{A,B} Means with different superscript letters differ for $P < 0.001$; ^{a,b} Means with different superscript letters differ for $P < 0.05$).

IV. CONCLUSION

The present research highlighted that a higher ambient temperature (28 vs. 20°C) affects the proximate composition of rabbit meat and that hair shearing mitigated the change, mainly referring to lipid content.

ACKNOWLEDGEMENTS

The research was funded by the University of Padova (Italy) funds (Anno: 2020 - prot. BIRD205514), and the GINOP-2.3.4-15-2016-00005 project. The project is co-funded by the EU and the European Social Fund.

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