Inclusion of sainfoin in the fattening concentrate: meat quality of light lambs

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The inclusion of forages in animal diets has been encouraged to increase the sustainability of farms, however, it can modify meat quality. The objective of this study was to evaluate the effect of the inclusion of sainfoin (*Onobrychis viciifolia*) at different rates in the concentrate of fattening lambs on meat quality. After weaning, twenty-six Rasa Aragonesa male lambs (BW: 14.0±0.49 kg; age: 30±0.66 d) were assigned to 3 treatments. They were fed isoproteic (170 g/kg DM) and isoenergetic (18.4 MJ/kg DM) concentrates for 40 days (slaughter BW: 25.0±0.78 kg). The concentrates were: commercial with 0% of sainfoin (Control), with 20% of sainfoin (20SF) and with 40% of sainfoin (40SF). After 24h, the *longissimus thoracis et lumborum* muscles were removed to analyse the chemical composition and the evolution of colour, haeme pigments and lipid oxidation at 0, 2, 5, 7, 9, and 12 days of storage. The inclusion of sainfoin in fattening concentrate did not affect the meat chemical composition ($P>0.05$), except for the intramuscular fat content, which was higher in the Control than in the 40SF group ($P<0.05$), whereas the 20SF lambs had intermediate contents. Regarding the colour traits, redness and metmyoglobin (MMb) were affected by the interaction between treatment and day of storage ($P<0.05$), although values were similar among treatments within each day, only a trend was observed in the MMb to be higher on days 9 and 12 in the Control than the 20SF group ($P<0.10$). The rest of the colour traits were similarly affected by the day of storage among treatments. Lipid oxidation was affected by the interaction between the inclusion of sainfoin and the day of storage ($P<0.001$), being lower in 20SF lambs than Control group at day 9 (0.172 vs 0.394 mg malondialdehyde/kg FM; $P<0.05$), whereas at day 12, both sainfoin treatments were lower than Control lambs (0.215, 0.373, and 0.592 mg malondialdehyde/kg FM, 20SF, 40SF and Control, respectively; $P<0.05$). In conclusion, the inclusion of sainfoin in the fattening concentrate improved lipid oxidation of meat, which could extend the shelf life of the product.

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