BOOK OF ABSTRACTS

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Variations in the fatty acids profile of the meat by adding hempseed cake in the diet of multiparous cull cows

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AIM

In the present work, eighteen multiparous cull cows belonging to Italian Simmental breed were considered. The cows were divided into two groups, group A whose diet was hay-based and group B whose diet was corn silage-based. Within the same group, whether A or B, the diet of half cows was supplemented with a concentrate containing hempseed cake (5% of the diet dry matter DM), whereas the others were provided with soybean meal instead. The hempseed cake, a by-product of hempseed oil production process, is rich in fat (around 10% of the DM) and has a favourable fatty acids (FA) profile, having unsaturated FA for over the 80% of the total FA (Baldini et al., 2018).
The aim of this work was to check whether the hempseed cake could improve the fatty acids profile of multiparous cull cows with respect to soybean meal.

MATERIAL AND METHODS

The total lipid fraction was extracted from samples of *m. longissimus thoracis* by following the procedure reported elsewhere (Folch et al., 1957). Fatty acids were esterified, methylated and quantified through GC-MS (GCMS 5977E, Agilent Technologies). The separation was performed through a HP 88 column (100 m x 0.25 mm x 0.25 µm). The FA composition was expressed as percentage of total FA and reported as mean ± standard error (SE). The statistics was carried out by using the software R vers. 4.0.0 with a model that considered the experimental factor (hempseed cake vs soybean meal) as fixed, and the type of forage (whether hay or corn silage) as block factor.

RESULTS

The results obtained for the hempseed cake group, considering the FA mainly present in meat, C16:0 (27.08 ± 0.59%), C18:0 (19.44 ± 0.78%), C18:1n-9c (35.31 ± 0.49%) as well as the FA favourable for the human health such as C18:3n-3 (0.36 ± 0.02%) and total polyunsaturated fatty acids (PUFA) (3.98 ± 0.17%), were comparable to those found for the soybean meal group ($P>0.05$). The n-6/n-3 ratio was not affected by the use of hempseed cake either (7.79 ± 0.74%; $P>0.05$). On the other hand, C14:0 turned out to be statistically higher (3.47 vs 3.03; $P<0.05$) for the group provided with hempseed cake. In conclusion, from an overall point of view, the FA profile of meat was not improved by adding hempseed cake in the diet of Italian Simmental cull cows.

Keywords: fatty acids; cows; gas chromatography-mass spectrometry

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