

## Feeding Effects of Increasing Levels of Yerba Mate on Lamb Meat Quality

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**Abstract :** The use of natural antioxidants in animal feed can positively modify the profile of fatty acids (FAs) in meat, due to the presence of secondary metabolites, mainly phenolic and flavonoid compounds, which promote an increase in the associated polyunsaturated fatty acids (PUFA) with beneficial factors in human health. The goal of this study was to evaluate the effect of the dietary inclusion percentage of yerba mate extract (*Ilex paraguariensis* St. Hilaire) as a natural antioxidant on lamb meat quality. The animals were confined for 53 days and fed with corn silage and concentrated in the proportion of 60:40, respectively, were divided into four homogeneous groups (n = 9 lambs/group), to each of the treatments, one control group without yerba mate extract - YME (0%) and three treatments with 1, 2 and 4% the inclusion of YME on a DM basis. Samples of the Longissimus thoracis (LT) muscle were collected from the deboning of 36 lambs, analyzing pH values, color parameters (brightness: L\*, red value: a\*, and yellow: b\*), fatty acid profile, total lipids, and sensory analysis. The inclusion of YME modified the value of b\* (P = 0.0041), indicating a higher value of yellow color in the meat, for the group supplemented with 4% YME. All data were statistically evaluated using the MIXED procedure of the statistical package SAS 9.4. However, it did not show differences in the final live weight in the groups evaluated, as well as in the pH values (P = 0.1923) and the total lipid concentration (P = 0.0752). The FAs (P ≥ 0.1360) and health indexes were not altered by the inclusion of YME (P ≥ 0.1360); only branched-chain fatty acids (BCFA) exhibited a diet effect (P = 0.0092) in the group that had 4% of the extract. In the sensory analysis test with a hedonic scale it did not show differences between the treatments (P ≥ 0.1251). Nevertheless, in the just about-right test, using (note 1) to 'very strong, softness or moist' (note 5); the softness was different between the evaluated treatments (P = 0.0088) where groups with 2% YME had a better acceptance of tasters (4.15 ± 0.08) compared to the control (3.89 ± 0.08). In conclusion, although the addition of YME has shown positive results in sensory acceptance and in increasing the concentration of BCFA, fatty acids beneficial to human health, without changing the physical-chemical parameters in lamb meat, the absolute changes are considered to have been quite small, which was probably related to the high efficiency of PUFA biohydrogenation in the rumen.

**Keywords :** composition, health, antioxidant, meat analysis

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