

CONSTRUINDO SABERES, FORMANDO PESSOAS E TRANSFORMANDO A PRODUÇÃO ANIMAL

## **REGRESSION ANALYSIS BETWEEN CONJUGATED LINOLEIC ACID (CLA) *trans*-10, *cis*-12 AND MILK FAT DEPRESSION (MFD) IN GOATS AND SHEEP**

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Conjugated linoleic acid (CLA) *trans*-10, *cis*-12 is an intermediate of an altered biohydrogenation pathway and it is able to inhibit the milk fat synthesis in the mammary gland of sheep and goats. CLA supplements can be used as a nutritional tool to evaluate its effects. The objective of this study was to evaluate the relationship between the concentration of *trans*-10, *cis*-12 CLA in milk and the fat content through regression analysis. A database was constructed using, respectively, 83 and 143 observations for sheep and goats fed with CLA *trans*-10, *cis*-12. The REG and NLIN procedures of SAS were used. The linear model resulted in the equation % fat = 5.51 - 4.44\*% CLA *trans*-10, *cis*-12 ( $r^2 = 0.34$ ;  $P = 0.0001$ ) for sheep and % fat = 3.10 - 0.62\*% CLA *trans*-10, *cis*-12 ( $r^2 = 0.15$ ;  $P = 0.0001$ ) for goats. For the nonlinear regression model with an exponential decay  $y = a * \exp^{(b*x)} + c$ , where "y" represents the fat content in milk (%) and "x" the concentration of CLA *trans*-10, *cis*-12 (%), the "a" is the scale, the "b" is the fractional rate and the "c" is the lower asymptote. The regressions obtained were, respectively, for sheep and goats:  $y = 2.61 * \exp^{(-5.12*x)} + 3.56$  and  $y = 1.45 * \exp^{(-15.90*x)} + 2.46$ . The results showed a lower decline rate in sheep compared to goats and a lower asymptote for goats under CLA-MFD.

**Keywords:** biohydrogenation, fat content, fatty acids, mathematical model.

Promoção e Realização:



Apoio Institucional:



Organização:

