# UNIVERSIDADE ESTADUAL DE MARINGÁ
## CENTRO DE CIÊNCIAS AGRÁRIAS
## PROGRAMA DE PÓS-GRADUAÇÃO EM ZOOTECNIA

# INFLUENCE OF USE OF THE PRODUCT CONTAINING PROPOLIS SL491* BASE FOR THE DIET OF RABBITS: CHARACTERISTICS OF RESISTANCE OF LEATHER

**Lucimar Peres de Moura Pontara[1], Maria Luiza Rodrigues de Souza Franco[1], Alessandra Aparecida Silva[2], Marcellie do Prado[3], Selma Lucy Franco[4], Eliane Gasparino[1], Claudio Scapinello[1]**

[1]Teachers of Animal Science Department **PPZ/UEM- Universidade Estadual de Maringá, UEM, Maringá - Paraná, PR, Brasil – CNPq** researcher **- Av. Colombo, 5790. CEP 87020-900. E-mail: lucimarpontaraperes@gmail.com** lmzeoula@uem.br **,** [2] MS in Animal Production – Escola Superior de Agricultura "Luiz de Queiroz", Piracicaba/SP, [3] MS in Animal Science **– Universidade Estadual de Maringá,** [4] Department of Pharmacy and Pharmacology – Universidade Estadual de Maringá

## INTRODUTION

The composition of propolis is evaluated by the group of flavonoids, which is considered the main chemical group, and has anti-bacterial activity and anti-protozoal (Mizuno et al., 1987). Stepanovic et al. (2003) studied the anti-microbial activity and synergism of propolis with antibiotics, obtaining results that indicate that propolis had anti-microbial activity near the Gram-positive bacteria and fungi, regardless of the level of antibiotic resistance.

The propolis used in this study has important medicinal properties and antioxidants, anti-microbial, healing and anti-inflammatory. The same has presented excellent results in scarring from burns and cuts to human skins. Propolis has the ability to simulate the activity of fibroblasts that are responsible for the development of collagen fibers present in the dermis, playing in the regeneration of the skin.

The rabbit fur is a byproduct that can be used well when subjected to the process of tanning. However, it is important to determine the quality and resilience of these skins, to define the best direction of raw material. It is therefore important to assess the quality of skin obtained from animals fed diets with propolis, to check the influence of propolis on the fibroblasts and thus the influence on the dermis of the skin, through tests to determine resistance.

The objective of this study was to evaluate the use of the SL491 * the basis of propolis, replacing robenidine and bacitracin zinc pellets, on the strength characteristics of the skins of rabbits rendered hairless.

## MATERIALS AND METHODS

SL491 * The product was prepared in the Laboratory of Pharmacology of the UEM, according to a methodology developed by Franco and Bueno (1999), and subsequently incorporated into the rations. Were formulated 5 diets with inclusion levels of SL491 * where: T1 = 0.0 g SL491 * 100 kg of feed, with robenidine and zinc bacitracin and four treatments without robenidine and bacitracin zinc, and with the inclusion levels SL491 *: T2 = 100 g * SL491, T3 = 150 g * SL491, T4 = 200 g SL491 *, T5 = 250 g SL491 * 100 kg of pelleted feed for treatment and ad libitum animals. A total of 60 rabbits with 35 days of life. The animals were slaughtered at 70 days of age.

The skins were subjected to the steps of soaking, fleshing, liming, alkaline products remotion, purge, degrease, pickling, tanning, neutralization, retanning, dyeing, greasing, drying and softening (Hoinacki, 1989 and Souza, 2004).

The samples-evidence for the tests were taken with the aid of a rocker in the longitudinal and transverse to the length of the body of the rabbit. Were then taken to the laboratory ambient air around 23 ° C and relative humidity of 50% for 24 hours. We determined the thickness measurements of each sample for calculation of tensile strength and elongation and tear. Dynamometer was used to mark EMIC, with the speed of separation between loads of 100 ± 20 mm / min.

We used a completely randomized in a factorial 5 x 2, five levels * SL491, the basis of propolis: T1 = 0.0 g, T2 = 100 g, T3 = 150 g, 200 g = T4, T5 = 250 g of SL491 * 100 kg of feed for each treatment and two-way leather (longitudinal, transverse), with 12 repetitions. The results were submitted to analysis of variance and means compared by Tukey test at 5% probability. The data were analyzed by SAS (1985), using the GLM.

## RESULTS AND DISCUTION

The leathers analyzed showed different thicknesses. The thickness of the leathers of T1 (1.48 mm) did not differ from other treatments. The leathers of T2 had significantly greater thickness (1.65 mm), differing from the T5 (1.38 mm). It can be inferred that high amounts of propolis may act negatively in the thickness of the hides (Figure 1).

Examining the longitudinal and transverse directions of leathers, there was no significant difference in thickness (Figure 1). However, in all the variables evaluated resistance, the transverse direction showed better results.

Although it did not differ significantly to the strength characteristics between the treatments, the average values were higher in the transverse direction of the leather. They showed significantly higher resistance to traction (8.13 N/mm2) and higher elongation (80.42%). The test showed progressive tear strength significantly greater in the transverse direction (16.17 N / mm), compared to the longitudinal direction (Figure 1).

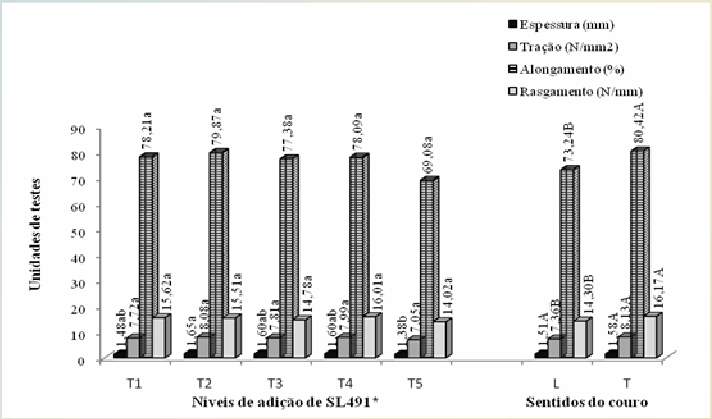



Figure 1 - Mean values of resistance testing of the leathers of rabbits, analyzing 5 levels added to the feed SL491 *

Hoinacki (1989), reported lower values for the bovine leather tanned with chromium, and the tensile strength of at least 9.8 N/mm2, elongation to break of at least 60% and progressive tearing of 14.70 N / mm , for making garments. Only leathers of the T2 (8.08 N/mm2) presented a value of tensile strength closer to recommended. Regarding progressive tear T1 (15.62 N / mm), T2 (15.51 N/mm), T3 (14.78 N/mm) and T4 (16.01 N/mm) are within the recommendations . For the rabbits, the addition of 100 g of SL491 * 100 kg of ration was enough to give more thickness to the leather.

## CONCLUSIONS

The level of addition of the SL491 * based on propolis, influence the development of collagen fibers. These fibers are responsible for the thickness of the leather. No influence of the levels of SL491 * on strength characteristics of the leather, but when added 100 g of SL491 * 100 kg in the diet, the leather had the highest resistance values.

## REFERENCES

FRANCO, S. L.; BUENO, J. H. F. Otimização de processo extrativo de própolis. Infarma, v.11, n.11/12, p.48-51, 1999.

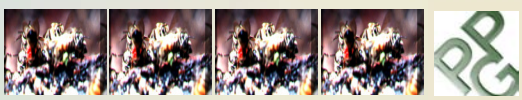
HOINACKI, E. 1989. Peles e couros - origens, defeitos, e industrialização. 2.ed. Porto Alegre: Henrique d´Ávila Bertaso.

MIZUNO, M., IINUMA, M., KATO, I.I. Useful ingredients and biological activity of propolis. Fragrance Journal,1987.

SOUZA, M.L.R. Tecnologia para processamento das peles de peixe. Maringá: Eduem, Coleção Fundamentum nº 11. 2004, 59p.

STATISTICAL ANALYSIS SISTEM – SAS. User's guide: statistics. 5. Ed. Cary, 592p, 1985.

STEPANOVIC, S. et al. *In vitro* antimicrobial activity of propolis and synergism between propolis and antimicrobial drugs. Microbiol Res, v.158, n.4, p.353-357, 2003.



Pró-Reitoria de Pesquisa e Pós-Graduação