

## Shear force and pH of meat of White New Zealand rabbits fed on feed partially replaced by biscuit

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**Introduction:** Nowadays, the demand for a healthy eating style is growing all over the world and rabbit meat is a source of polyunsaturated fatty acids, proteins and essential amino acids (Li et al., 2018). Different combinations of breeds and ways of production of rabbits cause great variation in meat quality (Dalle Zotte, 2002). One of the most important variable parameters is texture (Koziol et al., 2016). Thus, the objectives of this research were to evaluate the effects of adding residues from the biscuit food industry to rabbit feed on the pH and shear force of the meat.

**Materials and methods:** Twenty White New Zealand rabbits (60 days old, half female and half male, kept in conventional cages with access to ad libitum feed and water) were used. The treatments were CB (corn-based diet), B1 (replacement of 5% of the energy provided by the control diet with biscuit), B2 (10% biscuit) and B3 (20% biscuit). The animals were slaughtered and kept in a cooling chamber at 13 °C for 24h and then frozen and kept at -18 °C until the moment of analysis. The pH analysis was performed on the legs and loins of the animals after thawing at 4 °C with a pH meter (Hanna, Model HI 99163) for reading in triplicate with drilling at 3 different points. After roasting the same boneless cuts in an electric oven at 180 °C until the internal temperature reached 72 °C, the meat was cooled to 24 °C. For the shear force analysis, the meat was cut into 1.0 cm x 1.0 cm x 2.0 cm parallelepipeds and placed in a TA.XT Plus texturometer with a 1.0 mm Warner-Bratzler blade and speed of 4.17 mm/sec (Bourne, 2002). Means were evaluated by Tukey test and significance level was set at  $P < 0.05$ .

**Results:** The average pH of the legs was 6.09 for CB, 6.10 for B1, 6.03 for B2 and 5.82 for B3. There was no significant variation in pH between treatments. The same happened for the loins, and the pH was 5.54 for CB, 5.65 for B1, 5.70 for B2 and 5.61 for B3. The loins had a lower pH than the legs. Nóia et al. (2020) reported pH 6.62 for loins of rabbits of the same breed and Lima Cruz (2020) reported pH 5,48 for Lionhead rabbits in the same age. Therefore, results are similar to other studies.

In relation to the shear force, for both legs and loins, there was no significant difference between the samples of rabbits fed with different proportions of biscuit. However, these treatments had lower shear force than that observed for the corn-based diet. The means of shear force of the legs were 1.60 kgf for CB and 1.02, 1.14 and 1.18 kgf for B1, B2 and B3, respectively. In the case of loins, the BC samples had an average of 1.97 kgf and the others 1.07, 1.07 and 1.20, respectively. Therefore, cuts from rabbits treated with feed partially replaced by biscuit were softer. Other studies reported 1.70 kgf (Nóia et al., 2020) and 1.64 to 1.68 kgf (Kowalska et al. (2014) for the same breed. For other breeds, means from 1.76 (Koziol et al., 2016) to 3.84 (Gil et al., 2006) were observed. These variations are due to differences in breed, diet, pre-slaughter stress, carcass refrigeration conditions and other factors.

**Conclusions:** As expected, there were differences in texture due the diet of the rabbits, however, further studies are needed to know if chemical and fatty acid composition and color are also affected by these diets in order to recommend them.

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