ZOOTECNIA BRASIL
Centro de Convenções da PUC-GO | Goiânia-GO
27 a 30 de agosto de 2018

55ª REUNIÃO ANUAL DA SOCIEDADE BRASILEIRA DE ZOOTECNIA

ZOOTEC 28º CONGRESSO BRASILEIRO DE ZOOTECNIA

VI ARC 6th AMERICAN RABBIT CONGRESS

CONSTRUINDO SABERES, FORMANDO PESSOAS E TRANSFORMANDO A PRODUÇÃO ANIMAL

CARCASS CHARACTERISTICS OF GROWING RABBITS FED DIETS CONTAINING INCREASING LEVELS OF CASHEW NUT MEAL

Thalles Ribeiro GOMES*[1], Ednardo Rodrigues FREITAS[2], Pedro Henrique WATANABE[2], Maria Elizimar Felizardo GUERREIRO[2], Ana Carolina Sampaio FERREIRA[3], Rafael Carlos NEPOMUCENO[3]

*corresponding author: thalleszoo@yahoo.com.br
[1]Researcher of the Postgraduate Program in Animal Science of Federal University of Ceará
[2]Professor of Federal University of Ceará, Ceará, Brazil
[3]Animal Scientist from Federal University of Ceará, Ceará, Brazil

Resumo: Este experimento foi conduzido com o objetivo de avaliar os efeitos da inclusão de níveis crescentes (0, 5, 10, 15, 20 e 25%) do farelo da castanha de caju (FCC) em rações para coelhos em crescimento sobre as características de carcaça. Foram utilizados 120 coelhos mestiços (Nova Zelândia Branco × Califórnia), 60 machos e 60 fêmeas, com uma média de 45 dias de idade e peso médio de 1.090 ± 151g, distribuídos em um delineamento inteiramente casualizado, com seis tratamentos e dez repetições, sendo dois coelhos do mesmo sexo por gaiola. Observou-se que a inclusão do FCC até 20% não influenciou as características de carcaça. Com base nos resultados, pode-se inferir que o farelo da castanha de caju pode ser utilizado em dietas para coelhos em crescimento até o nível de 20%.

Keywords: agroindustrial waste, alternative feedstuff, *Anacardium occidentale L.*, carcass yield, *Oryctolagus cuniculus*

Introduction

Rabbit meat is considered lean and healthier meat when compared to beef, sheep and pork. In addition, it is highly digestible, tasty, low in calories, fats and cholesterol being frequently recommended by nutritionists in the distribution of these other meats (Nistor et al., 2013). However, this type of food is considered a limited consumer product, both for price and culture.

The cost of production is elevated because of the dependence on corn, alfalfa hay, and soybean meal, which, despite having good nutritional values, may increase the dietary costs due to the variations of price in some periods of the year and in some regions where they are not produced to meet the demand.

The growth of the agribusinesses and the increased production of wastes have fostered the interest in studying the use of agricultural by-products as animal diet ingredients. However, the geographic location, the availability, the nutritional value, and the costs of these ingredients should be evaluated for each case.

Among the waste stands out cashew nut meal (CNM), and the same coming from the processing almond cashew nuts for human consumption. It is estimated that up to 30% of processed cashew nuts does not reach a minimum grade for use in human feeding, being designed to animal feeding (Akande et al., 2015).

Dietary use of cashew nut meal has been proposed by several authors for animal feed, however, information on the nutritional potential of this product to rabbits is scarce. Given the above, the objective was to evaluate the inclusion of increasing levels of this ingredient in diets for growing rabbits on carcass characteristics.

Material and methods

Were used 120 crossbred rabbits (New Zealand White × Californian), 60 males and 60 females, with an average of 45 days of age and weight 1090 ± 151g, distributed in a completely randomized design with six treatments and ten repetitions with two rabbits of the same sex per cage. The treatments consisted of a control diet, based on corn, alfalfa hay, soybean meal and wheat bran, and the rest, with the inclusion of cashew nut meal at levels of 5, 10, 15, 20 and 25 %.

For the evaluation of carcass characteristics at 90 days of age, all the rabbits were sent to slaughter. Initially the rabbits were weighed and subjected to fasting for 12 hours and after this period, were weighed again to obtain weight at slaughter was carried out with stunning and bleeding by cutting the jugular vein. Subsequently, it proceeded to the removal of the skin, legs, tail and head.

The eviscerated carcass, liver, kidneys, heart and abdominal fat were weighed to calculate the carcass yield and proportions of the parts.

The carcass yield (%) was obtained by the ratio of the weight of the eviscerated carcass and slaughter warm by weight of the rabbit and the end result is multiplied by 100. The relative weight data (%) of liver, kidneys, heart were obtained by the relation between the weight of the evaluated part and the live weight and percentage of abdominal fat was obtained by the ratio between the weight of the evaluated part and the hot carcass weight.

The hind legs were removed, weighed and dissected according to the method described by Blasco and Ouhayoun (1996) and right paw used to obtain the relationship meat/bone according to the formula RC/O = $\frac{Pca}{PO}$, in which RC/O is the ratio meat/bone, and Pca is the weight of the meat (g) and PO is the weight of bone (g) according to Rao et al. (1978).

Results and discussion

According to the results for carcass characteristics (Table 1), it was observed that the inclusion of cashew nut meal in the diet influenced significantly (P <0.05) carcass yield, the ratio meat/bone and the proportion of liver and heart.

Table 1 - Carcass characteristics of growing rabbits[1] fed diets containing increasing levels of cashew nut meal.

Inclusion level (%)	Parameter (%)					
	Carcass yield	M/B	Liver[4]	Heart	Kidneys	Abdominal fat
0	58.1	7.9	2.5	0.2	0.6	2.6
5	57.9	8.1	2.4	0.2	0.6	2.8
10	58.2	7.7	2.5	0.2	0.6	2.6
15	57.2	7.6	2.7	0.2	0.6	2.5
20	57.0	7.7	2.8*	0.2*	0.6	2.5
25	55.3*	7.1*	2.9*	0.2*	0.6	2.2
Sex						
Male	57.2	7.6	2.8[a]	0.2	0.6	2.4[b]
Female	57.4	7.8	2.6[b]	0.2	0.6	2.7[a]
Mean	57.3	7.7	2.7	0.2	0.6	2.5
SEM[2]	1.55	0.61	0.37	0.01	0.07	0.58
ANOVA[3]	P-Value					
Level	0.0042	0.0845	0.0001	0.0053	0.6918	0.1462
Sex	0.5605	0.2388	0.0016	0.6428	0.5698	0.0173
Level × Sex	0.9790	0.8154	0.1130	0.6908	0.0605	0.7450
Regression						
Linear	0.0007	0.0053	0.0001	0.0013	0.3380	0.0090
Quadratic	0.1053	0.6673	0.8733	0.8315	0.9264	0.8359

[1]n=20 rabbits/treatment; SEM[2], standard error of mean; ANOVA[3], analysis of variance; M/B, meat/bone ratio.[4]Ratio between the organ weight and the rabbit live weight after feed deprivation. [a,b]means followed by different letters in the column differ (P<0.05) by the F test.* Differs statistically compared with the control treatment by Dunnett's test (P<0.05).

According to regression analysis, excluding the control treatment, carcass yield (Y = 59.03 - 0,13X; R^2 = 0.79), the ratio meat/bone (Y = 8.19 - 0.037X, R^2 = 0.74) and the percentage of abdominal fat (Y = 2.95 - 0,027X; R^2 = 0.95), decreased linearly with the addition of cashew nut meal in the diets, and these values

proportional to lower consumption and weight gain obtained in the performance test, which reflected the weight of slaughter of these animals.

Comparing the CNM increasing levels in the feed in relation to the treatment without inclusion of the ingredient, it was noted that the inclusion of 25% of CNM in the diets negatively influenced the carcass yield and meat deposition in the carcass of rabbits, decreasing the ratio meat/bone, suggesting that the muscle protein deposit is less than the control treatment, because there is a reduction in the deposition of the meat mass.

The increase relative weight of organs such as liver ($Y = 2.29 + 0,026X$; $R^2 = 0.99$) and heart ($Y = 0.196 + 0,001X$; $R^2 = 0.69$) could be attributed to fat deposits around the cardiac muscle and an indirect effect due to the increase of metabolic activity in the liver (Oluokun and Olaloku, 1999), since it actively participates in lipid metabolism, or even by deposition in hepatocytes by an excess of triglycerides available for storage.

Effects inherent in the sexual dimorphism on carcass characteristics of variables showed that females had a higher percentage of abdominal fat deposition relative to males, agreeing with Deltoro and Lopez (1986), which stated that the abdominal fat deposits tend to be greater in female rabbits.

Conclusion

It is concluded that cashew nuts have the potential to be used without prejudice to the carcass characteristics of growing rabbits up to a level of 20% and that the inclusion of cashew nuts improves rabbit production yield.

References

AKANDE, T. O., AKINWUMI, A. O., ABEGUNDE, T. O. Cashew reject meal in diets of laying chickens: nutritional and economic suitability. **Journal of Animal Science and Technology**, v.57, n.17, 2015.

BLASCO A., OUHAYOUN J. Harmonization of criteria and terminology in rabbit meat research. Revised proposal. **World Rabbit Science**, v.4, p.93-99, 1996.

DELTORO, J., LÓPEZ, A. M. Development of commercial characteristics of rabbit carcasses during growth. **Livestock Production Science**, v. 15, n. 2, p. 271-283, 1986.

NISTOR E., BAMPIDIS V. A., PĂCALĂ N., PENTEA M., TOZER J., PRUNDEANU H. Nutrient content of rabbit meat as compared to chicken, beef and pork Meat. **Journal of Animal Production Advances**, v.3, n.4, p. 172-176, 2013.

OLUOKUN, J. A., OLALOKUN, E. A. The effect of graded levels of brewers' spent grains and kolanut pod meal on the performance characteristics and carcass quality of rabbits. **Nigerian Journal of Animal Production.** v.26, p. 71-77, 1999.

RAO, D. R., CHEN, C. P., SUNKI, G. R., JHONSO, W. M. Effect of weaning and slaughter ages on rabbit meat production II. Carcass quality and composition. **Journal of Animal Science,** v.46, p.578-583, 1978.