

**NSAP****47th Annual
Conference
(JOS 2022)****CONFERENCE
PROCEEDINGS**THEME
**SECURING ANIMAL
AGRICULTURE AMIDST
GLOBAL CHALLENGES****EVALUATION OF BAKER'S YEAST (*Saccharomyces cerevisiae*) SUPPLEMENTATION ON GROWTH PERFORMANCE AND CARCASS CHARACTERISTICS OF WEANER RABBITS (*Oryctolagus cuniculus*)****H. Ibrahim, J. M. Gajere A. Zahradeen and L. Mohammed**

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ABSTRACT

*The study was conducted to evaluate the effect of baker's yeast (*Saccharomyces cerevisiae*) supplement on the growth performance and carcass characteristics of weaned rabbits. A total of thirty-six (36) weaned rabbits of mixed sex at 2:1 (2 Females: 1 male) were purchased for this study and were randomly allotted into four dietary treatment groups in a completely randomized design. Baker's yeast (*Saccharomyces cerevisiae*) was used in the formulation of the experimental diets such that T1 contained 0g, T2 contained 20g/kg, T3 contained 40g/kg and T4 contained 60g/kg of baker's yeast respectively. Each treatment was replicated three times with three rabbits per replicate. The trial lasted for a period of 8 weeks. The result revealed significant difference among the growth performance parameters measured, carcass characteristics showed no significant difference except the neck weight that was significantly ($p < 0.05$) different. The values of internal organs and by-products revealed no significant ($p < 0.05$) difference. It was concluded that baker's yeast (*Saccharomyces cerevisiae*) could be introduced into rabbit diets to enhance their growth performance without any adverse effect on their health status and overall performance.*

Key words: baker's yeast, supplementation, growth, performance, carcass**INTRODUCTION**

Increasing demand for animal protein and the economic hardship faced by the populace in the tropics have stimulated greater interest in fast-growing animals with short generation intervals such as the rabbit (Aduku and Olukosi, 1990). Low level of antibiotics has over the years been used in rabbit production as growth promoters and prophylactic agents of diseases (Falcão-e-Cunha *et al.*, 2007). However, the massive use of antibiotics for disease prevention and growth promotion in animal production has been implicated in the emergence of antibiotic-resistant pathogens and antibiotic residues in animal products, which is a public health concern. Constraints on the use of antibiotics in animal nutrition globally require alternative feed additives to antibiotics for improved growth performance, sound physiological status and productivity. There are a number of non therapeutic alternatives to antibiotics, that include enzymes, herbal products, microflora enhancers, immune modulators, organic acids, pro-biotic and combination of these products. Several mechanisms of action of these feed additives have been suggested (Inborr, 2000). The alternative will need to meet consumer demands for natural products and maintain high standards of wholesomeness expected in rabbit meat. The appealing properties of pro-biotic as reported by Strompfova *et al.* (2006) include the ability to reduce antibiotic use, the apparently high index of safety and the positive perception of the public about natural or alternative therapies. The yeast, *Saccharomyces cerevisiae* is a probiotic and a possible strategic alternative because of its availability, safety and cheapness. Its cells contain a lot of proteins, carbohydrates, lipids, vitamins and minerals (Reddy *et al.*, 2006; Milic *et al.*, 2007). *Saccharomyces cerevisiae* is a valuable and qualitative growth promoter for feeding livestock (Njike *et al.*, 1987; Falcão-e-Cunha *et al.*, 2007; Shareef and Al-Dabbagh, 2009). The objective of the study was to determine the best inclusion level of baker's yeast supplementation, evaluate the effect of baker's yeast on the growth performance and carcass characteristics of weaned rabbits.

MATERIALS AND METHODS



Location of experimental site: The experiment was conducted at the Rabbitry unit of the Teaching and Research Farm, Department of Animal Production, Faculty of Agriculture, Ibrahim Badamasi Babangida University Lapai, Niger State, Nigeria

Experimental Animals and their management: A total number of thirty-six (36) weaned rabbits of mixed sexes at 2:1 (female:male) were used in the experiment, the animals were randomly allotted to the four dietary treatment and the treatments were replicated thrice and each replicate consisted of 3 rabbits in (CRD) completely randomized design. Four experimental diets were formulated such that baker's yeast was included at 0, 20g, 40g and 60g (Table1) with all the diets having a crude protein of (17%). The Rabbits were fed twice daily and water provided *ad-libitum* for the duration of trial period (8 weeks). Feed consumption record was taken by weighing the leftover feed and subtracting from the feed offered. The rabbits were weighed on daily basis and at the end of the experiment, 1 rabbit was randomly selected per replicate making 3 rabbits per treatment and 12 rabbits in total. They were weighed, fasted overnight and re-weighted before they were slaughtered. The rabbits were properly bled by turning their head downward to encourage blood flow. Then they were weighed again before the carcass were dissected and cut into primal parts.

Data generated were subjected to analysis of Variance (ANOVA) Using Statistical Package (SPSS), the significant differences among treatments means were compared using Least Significance Difference ($P < 0.05$) (LSD).

Table 1: Composition of Experimental Diet

Ingredients (%)	T ₁	T ₂	T ₃	T ₄
Maize	76.00	75.80	75.60	75.40
Groundnut cake	20.00	20.00	20.00	20.00
Fish meal	1.50	1.50	1.50	1.50
Limestone	1.00	1.00	1.00	1.00
Bone meal	1.00	1.00	1.00	1.00
Premix	0.25	0.25	0.25	0.25
Salt	0.25	0.25	0.25	0.25
Baker's yeast (kg)	-	0.20	0.40	0.60
Total	100	100	100	100
Calculated values				
Crude protein (%)	17	17	17	17
Metabolizable energy (kcal/kg)	2,799.128	2,799.128	2,799.128	2,799.128

RESULTS AND DISCUSSION

Table 3: shows that there was no significant differences ($p > 0.05$) in almost all the growth performance parameters that were measured, however the significant difference ($p < 0.05$) recorded was in the total feed intake and weekly feed intake with treatment 3 and 4 (T₃ and T₄) having the highest feed intake values and treatment 1 (T₁) recording the lowest level of feed intake. Enhancement in feed intake may be attributed to test ingredient yeast addition increases the population of total rumen bacteria and which in turn helps increase feed intake as well as feed digestibility, therefore, more nutrients are available to growth operations (Habeeb *et al.*, 2017).

Table 5 shows that there were no significant difference ($P > 0.05$) in all the parameters obtained. As such the dietary treatment had no effect on the internal organs of the rabbits, similar results were reported by Rahbar *et al.* (2011) for the weight of the spleen and liver of broilers when *S. cerevisiae* was added to their rations

Table 2: Proximate Analysis of the experimental diets

Treatments	T ₁	T ₂	T ₃	T ₄
Parameters	0g/kg	20g/kg	40g/kg	60g/kg
Moisture	6.20	6.20	7.60	6.60
Crude protein	17.00	17.02	17.04	17.06



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Crude fibre	10.50	10.22	10.15	10.10
Ether extract	7.48	6.38	6.74	7.00
Ash	7.21	8.33	7.34	7.63
Nitrogen free extract	54.96	55.27	57.22	59.77

Table 3: Growth Performance of Weaned Rabbits Fed Different Levels of Baker's Yeast as Supplement

Parameters	T ₁	T ₂	T ₃	T ₄	SEM±	LSD
Inclusion level (g)	0g/kg	20g/kg	40g/kg	60g/kg		
Initial weight	633.33	611.11	633.33	633.33	39.89	NS
Final weight	868.67	873.67	923.00	859.00	97.39	NS
Total body weight gain	235.33	262.55	289.67	225.67	69.91	NS
Total Feed intake	3450.73 ^b	4069.00 ^a	4221.00 ^a	4221.00 ^a	246.69	*
Weekly body weight gain	29.42	32.82	36.21	28.21	8.76	NS
Weekly feed intake	431.34 ^a	508.63 ^{ab}	527.63 ^b	527.63 ^{ab}	39.28	*
Feed conversion ratio	14.66	15.50	14.57	18.70	6.04	NS

a, b, c: Means with different superscripts on the same row differ significantly ($P < 0.05$)

S.E.M=Standard error of mean,

LSD= Least significant difference.

Table 4: Carcass Characteristics of Rabbits Fed With Diet Supplemented Baker's Yeast at Varying Level of Inclusion

Parameters	T ₁	T ₂	T ₃	T ₄	SEM±	LSD
Inclusion level (g)	0g/kg	20g/kg	40g/kg	60g/kg		
Live weight	868.67	873.67	809.67	812.00	108.58	NS
Slaughter weight	846.67	850.33	788.67	788.67	104.93	NS
Dressing weight	393.33	413.33	375.33	340.33	59.21	NS
Neck weight	29.33 ^a	23.00 ^b	21.00 ^b	19.67 ^b	2.73	*
Thoracic weight	57.00	69.67	64.67	61.00	13.53	NS
Lumber sacral	133.00	132.00	119.67	108.00	20.17	NS
Hind limb	105.33	118.33	104.67	93.00	15.49	NS
Fore limb	62.67	68.67	64.00	57.33	10.03	NS

a, b, c: Means with different superscripts on the same row differ significantly ($P < 0.05$)

S.E.M=Standard error of mean,

LSD= Least significant difference.

Table 4: the results obtained from the experiment shows that there were no significant difference ($P > 0.05$) in almost all the carcass characteristics parameters obtained with the exception of neck weight. Therefore the inclusion of graded level of yeast had no influence on the carcass characteristics of the rabbits except in the neck.

Table 5: Internal Organs of Rabbits Fed with Diet Supplemented Baker's Yeast at Varying Level of Inclusion

Parameters	T ₁	T ₂	T ₃	T ₄	SEM±	LSD
Inclusion level (g)	0g/kg	20g/kg	40g/kg	60g/kg		
Liver	35.00	32.67	33.67	32.33	3.70	NS
Kidney	6.33	8.67	6.67	8.33	1.49	NS
Lungs	6.00	7.33	7.00	7.33	1.94	NS
Intestine	211.00	169.67	169.67	193.33	25.23	NS
Heart	2.33	2.67	2.33	1.67	0.85	NS



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Pancreas	7.67	6.67	6.67	8.67	1.75	NS
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a, b, c: Means with different superscripts on the same row differ significantly ($P < 0.05$)

S.E.M=Standard error of mean,

LSD= Least significant difference. .

Table 6: By-products of rabbits fed with diet supplemented baker's yeast at varying level of inclusion

Parameters	T ₁	T ₂	T ₃	T ₄	SEM±	LSD
Inclusion level (g)	0g/kg	20g/kg	40g/kg	60g/kg		
Blood	20.67	23.33	23.67	22.67	5.74	NS
Pelt/skin	53.67	66.00	55.33	57.00	13.48	NS
Head weight	85.67	89.33	85.00	84.67	7.65	NS
Tail weight	5.00	6.00	6.00	6.33	1.25	NS
Fore leg	7.33	7.00	6.33	6.67	0.91	NS
Hind leg	16.00	16.00	13.00	15.33	2.01	NS

a, b, c: Means with different superscripts on the same row differ significantly ($P < 0.05$)

S.E.M=Standard error of mean,

LSD= Least significant difference.

Table 6: The result obtained showed that there were no significant different ($P > 0.05$) among the treatment groups for by-product.

CONCLUSION

The result of the experiment revealed that inclusion level of baker's yeast at (40g/kg) recorded best for final body weight, weekly body weight gain and total weight gain, as such baker's yeast could be fed to weaned rabbits for optimum growth performance and without any negative effect on the growth and carcass characteristics of growing rabbits.

RECOMMENDATION

From the conclusion, treatment three (40g/kg) recorded best results and therefore recommended and that more research should be carried out in order to ascertain the standard level of yeast supplementation for the optimum performance of weaned rabbits.

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