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EFFECT OF USING THE *SACCHAROMYCES CEREVISIAE* ON THE SOME PRODUCTION TRAITS AND CARCASS CHARACTERS OF THE LOCAL RABBITS

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Abstract

This study was carried out to investigate the effect of *Saccharomyces cerevisiae* as a feed additive on some production traits and carcass of rabbits. The 24 local rabbits males age 2-3 months with the average body weight of 1.2±0.3 kg were divided randomly into three groups with eight rabbits per group. Control group, the rabbits of this group fed standard ration without additives. The rabbits of the second group were fed *Saccharomyces cerevisiae* (4 g/kg as feed additives), and the rabbits of the third group were fed *Saccharomyces cerevisiae* (5 g/kg as feed additives). The results showed that no significant effect on feed intake between all groups, the using *Saccharomyces cerevisiae* had highly significant increased (P< 0.05) on total weight gain, daily weight gain and final weight gain compared with control group. There was no significant effect of all treatment on blood parameters. The using *Saccharomyces cerevisiae* 4 and 5 g/ kg as feed additives, showed a significant effect (P<0.05) in hot carcass weight and significant effect (P<0.05) of *Saccharomyces cerevisiae* 5g/ kg as feed additives on the cold carcass weight compared with control group, It was also observed that there was a significant effect (P<0.05) of the using of *Saccharomyces cerevisiae* 4,5 g/ kg feed compared with the control group on the dressing per cent. And no significant was observed between all groups in the weight of the internal organs. From result concluded the feeding *Saccharomyces cerevisiae* to the rabbits caused enhancement the body weight and feed conversion efficiency and improve some carcass traits.

***Keywords*:** Saccharomyces *cerevisiae,* Carcass, body weight, blood, rabbit

Introduction

The bubs rabbit weaning is very intricacy and required to supplement feed that supports the digestive system. The weaning pubs need to accommodate and adapted to the concentrate feed and the first 20 days after weaning considered as a critical period, during this period the diseases may be impacted the digestive system (Gallois *et al.*, 2008; Bivolarski and Vachkova, 2014). The disorders of the digestive system are the significant causes of rabbit mortality and cause growth retardation. In previous years, the researchers were using vitamins such as vitamin E to enhancement the rabbit health (Alrawi, 2016). While the other authors were using the antibiotics for increasing the growth and enhance production performance, but these materials cause other complications such as microorganisms' resistance and cancer. Therefore, using different methods for improving growth and production became a necessity and preferred using the probiotics such as yeast (Maertens and Coudert, 2006).

The yeast has a vital role in growth and digestion. Yeast supply the digestion enzymes that play an important role in increased the activity of microflora and elimination the pathological bacteria in the digestive tract (Mountzouris *et al.*, 2007). Therefore this study was conducted to evaluate the effect of yeast *Saccharomyces cerevisiae* on some production and carcass traits of a local rabbit.

Materials and Methods

Twenty- four locally male rabbit 2-3 months of age and 1.2±0.3 kg of weight were used. These rabbits were purchased from local market. The rabbits were divided randomly into three groups. The rabbits were feeding alfalfa and concentrated diet for two weeks as adaptation period. Then the alfalfa was introduced as ad labtum, while the concentrate diet proposed for rabbits 150 mg/ head daily from ration in table 1. The composition of the concentrate diet illustrated in table 2. The composition was analyzed in the nutrition laboratory/ animal wealthy department/ college of agriculture/ University of Baghdad table (2). The animals were examined and checking rabbits healthy before beginning the experimental and randomly divided into three groups. Eight rabbits for each group all rabbits were given ad labtum alfalfa. The first group was given ration without additive 150 grams daily and considered as a control group, and the second group fed 150 g. Daily with the ration that contain 4 g./kg yeast of *Saccharomyces cerevisiae* (Seyido\uglu, Galip and others, 2014), while group three was fed 150 g. daily with the ration that contains 5 g./kg yeast *Saccharomyces cerevisiae* (Seyido\uglu, Galip and others, 2014). The study parameters include:

1. Quantity of concentrated daily intake feed
2. Initial, weekly and total weight gain
3. Feed conversion efficiency.
4. Hematological parameters (PCV, Hb, RBC, MCV, MCH, MCHC and WBC).
5. Carcas characteristics: the rabbits were slaughtered at the end of experimental after fasted for 12 hours and the live weight was recorded, and the offal was weighed and the carcass measurement were measured then the carcasses were weighted after 30 minutes after animals slaughtered as a hot weight, while the cold weight the carcasses weighted after 24 h. from slaughter and preservation in refrigeration at 2 C. the bodies were cut and weighted internal parts .

The data of study were illustrated in to mean and standard error and subjected to SAS program version 9.1 by using one-way analysis and using Duncan test (Duncan, 1955) (7) to study differences between means at 0.05 and 0.01.

Table 1 : The component of ration.

No.	Types of feed	%
1	barley	45
2	Soya bean	10
3	bran	24
4	Corn	20
5	Salt	0.5
6	Limestone	0.5
		100

Table 2 : The chemical composition of ration

Component	%
Dry matter	99.14
Ash	4.33
Ether extraction	6.9
Crude fiber	8.14
Crude protein	14.55
Free nitrogen extraction	66.08
Metabolized energy	13.54

Results and Discussion

The feed additives very widely used in the world to improve animal's health and production, the current study using *Saccharomyces cerevisiae* as feed additives for enhancing the production and carcasses traits of rabbits, table 3 showed no significant differences between different groups an feed intakes these results were agreement with (Kustos *et al.*, 2004; Matusevičius *et al.*, 2006), and the due to limit the quantity of feed. The results showed a significant increases ($P<0.05$) in the final weight, total and weekly body weight and feed conversion efficiency in the groups that fed *Saccharomyces cerevisiae* (group 2 and 3) compared with the control group, these results agreed with (Kritas *et al.*, 2008; Ezema and Eze, 2015; El-Badawi, 2018) the reason for this increase may be returned to the role of yeast to stimulation the microflora and improve the feed digestion and analysis table (3).

Table 4 illustrated the blood parameters (PCV, Hb, RBC, MCV, MCH, MCHCH and WBC), that showed moderate fluctuated differences between all groups, these results agreed with (Kritas *et al.*, 2008), while disagreement with(Ezema and Eze, 2012), this explained by causes of a breeding regime that used in the current study. The results in table 4 showed a significant differences ($P<0.05$) in hot carcass weight in group 2 and three that fed *Saccharomyces cerevisiae* (4, 5 g/kg feed respectively) compared with control group because the yeast has improvement role in digestibility and body weight that effect on the carcass traits directly. While the offal weight was recorded non-significant differences between the treated and control group, these results agreed with the results that obtained by (Sahoo and Bhatt, 2017) . Finally the results revealed the feeding *Saccharomyces cerevisiae* (4 g/kg feed) has a significant effect ($P<0.05$) in the dressing carcass percentage compared with control group (Sahoo and Bhatt, 2017; Marounek *et al.*, 2007), due to increase in the body weight that accompanied an increasing the dressing carcass percentage.

Conclusion

From results concluded the added yeast of *Saccharomyces cerevisiae* into rabbit ration caused improvement the digestibility and some production traits with enhancement the carcass characteristics.

Table 3 : The effect of *Saccharomyces cerevisiae* as a feed additive on the body weight gain, feed intake and feed conversion efficiency of local rabbits.

Parameters	Group 1 control	Group 2 Fed yeast (4 g/ kg feed)	Group 3 Fed yeast (5 g/ kg feed)	Level of significant
Initial body weight (g)	1237± 20.2 a	1265.3 ± 14.2a	1266.6 ± 15.3a	
Final body weight (g)	1115±12.9b	1647.6 ± 35.7a	1636 ± 25.1a	0.05
Total body weight gain (g)	274.7 ± 20.1b	382.3 ± 21.6a	369.3 ± 22.4a	0.05
Daily body weight gain (g)	4.6 ± 0.3b	6.4 ± 0.3a	6.13 ± 0.3a	0.05
Concentrated feed intake (g)	4171.7 ± 30.6a	4176.3 ± 40.2a	4226.6 ± 68.1a	

The different letters refer to significant differences between different groups at ($P<0.05$)

Table 4 : The effect of *Saccharomyces cerevisiae* as a feed additive on the hematological parameters of local rabbits.

Parameters	Group 1 control	Group 2 Fed yeast (4 g/ kg feed)	Group 3 Fed yeast (5 g/ kg feed)	Level of significant
WBC ($x10^6$/ml)	5.5 ± 0.9a	5.6 ± 0.3a	4.2 ± 0.7a	
RBC ($x10^3$/ml)	7. 1±0.4 a	6.8 ±0.2a	6.9 ± 0.4a	
Hb (g/100 ml)	16.7 ± 0.8a	16.6 ± 0.1a	16.3 ± 0.4a	
PCV %	48.5 ± 3.1a	47.1 ± 0.4a	46.4 ± 1.2a	
MCV (fl)	68.8 ± 2.1a	69.1 ±0.9a	67.2 ± 2.1a	
MCH (pg)	23.8 ± 0.7a	23.9 ± 0.6a	23.7 ± 0.8a	
MCHC (g/dl)	34.6 ± 0.5a	34.7 ± 0.4a	35.2 ± 0.3a	

Table 5 : The effect of *Saccharomyces cerevisiae* as a feed additive on the carcass traits of local rabbits.

Parameters	Group 1 control	Group 2 Fed yeast (4 g/ kg feed)	Group 3 Fed yeast (5 g/ kg feed)	Level of significant
Hot carcass weight	761.3 ± 108.2 b	806.3 ± 59.1 a	868.7 ±**67.2** a	0.05
Cold carcass weight	733.3 ± 98.5 b	782.35±8.6 ab	826.6 ± 101.5 a	0.05
Dressing carcass percentage	46.6 ± 1.1 b	51.3± 3.5 a	49.6 ± 0.4ab	0.05
Total offal weight	358.6 ± 45.1a	358.2 ± 15.1a	361.3 ± 56.9a	
Head weight	143 ± 11.2a	144.3 ± 5.6a	144 ± 4.9a	
Leather weight	159.6 ± 21.1a	152.2 ± 8.6a	155.3 ± 9.8a	
Heart weight	3.9 ± 0.6a	4 ± 0.5a	5 ± 1.1a	
Left kidney weight	5.6 ±**0.6** a	5.6 ± 0.3a	5.4 ± 0.8a	
Right kidney weight	5.6 ± 0.3a	5.3 ± 0.3a	5.5 ± 0.7 a	
Liver weight	45.4 ±**4.3** a	46.3± 1.8a	47.3 ± 6.2a	

The different letters refer to significant differences between different groups at (P<0.05)

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