



Effect of yeast preparations *Saccharomyces cerevisiae* on Meat Performance Traits and Blood Hematological Indices in Sucking Lambs

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Introduction

Saccharomyces cerevisiae dried brewer's yeast is a rich source of valuable protein, a vitamin B complex, numerous minerals and enzymes, as well as immunomodulators: β -1,3/1,6-D-glucan and mannan-oligosaccharides - MOS. The supplementation of animals feed with its preparations can, therefore, have a stimulating effect on immunity and productivity. The aim of the study was to establish the influence of dried yeast *Saccharomyces cerevisiae* and an extract containing β -glucan and MOS, on the meat performance traits and blood hematological indices in sucking lambs.

Material and Methods

The study was conducted on 48 sucking lambs - the offspring of Kamieniec ewes - divided into three equal groups: I - control, II and III - experimental. Throughout a 70-day rearing period, beginning from the age of 11th day, experimental group lambs were fed diets supplemented with dried brewer's yeast *Saccharomyces cerevisiae* (group II) or Biolex-MB40 - a yeast extract containing 25-30% β -1,3/1,6-D-glucan and 20-25% MOS (group III). The prebiotics were mixed with the CJ concentrate in the amount: adequately of 50 g/kg or 3 g/kg. Meat performance traits, i.e. body weight, daily gains, growth rate, cross-section dimensions of *musculus longissimus dorsi* (m. l. d.) and fat thickness over the loin "eye", as well as blood hematological indices were determined. M. l. d. and fat thickness at the age 70 days were measured at the last rib using a SSD 500 Aloka ultrasound system with a 7.5 MHz linear transducer.



Results

It was found that both dried brewer's yeast *Saccharomyces cerevisiae* and Biolex-MB40 added to concentrated feed had a significant influence on the meat performance traits of lambs, including body weight, daily gains, growth rate and *m. longissimus dorsi* dimensions indicating muscle tissue development (Tab. 1). It was also demonstrated that the above supplements caused a significant increase in the values of blood hematological indices: WBC, RBC and HGB and in the number of lymphocytes in the leukogram (Tab. 2), suggesting immune system stimulation. The effect of both yeast supplements was comparable.

Tab. 1. Traits of meat performance (Mean \pm SD).

Traits	Group		
	I	II	III
Body weight (kg) at the age of:			
2 days	4.81 \pm 1.01	4.78 \pm 0.83	4.89 \pm 0.77
70 days	21.07 \pm 2.66 ^a	23.19 \pm 2.69 ^a	23.89 \pm 2.24 ^a
Daily gains in the period			
2-70 days (g)	239.12 \pm 59.23 ^a	270.07 \pm 48.89 ^a	279.94 \pm 61.78 ^a
Growth rate in the period			
2-70 days (%)	125.44 \pm 5.01 ^a	131.88 \pm 6.19 ^a	132.23 \pm 5.11 ^a
M. l. d. ultrasound scanning			
- depth (cm)	1.96 \pm 0.22	1.97 \pm 0.42	2.01 \pm 0.46
- width (cm)	5.14 \pm 0.16 ^a	5.43 \pm 0.18 ^a	5.58 \pm 0.13 ^a
- area (cm ²)	7.47 \pm 0.42 ^{ab}	8.15 \pm 0.51 ^a	8.51 \pm 0.23 ^a
Fat thickness (cm) over the loin "eye"	0.16 \pm 0.04	0.17 \pm 0.01	0.16 \pm 0.03

a, b - $p \leq 0.05$; A, B - $p \leq 0.01$

Tab. 2. Blood hematological indices in lambs (Mean \pm SD).

Index	Age (days)	Group		
		I	II	III
WBC (10 ⁹ /l)	28	8.98 \pm 4.32	10.11 \pm 2.66	9.61 \pm 3.53
	70	8.89 \pm 1.83 ^{ab}	11.41 \pm 2.16 ^a	10.83 \pm 1.35 ^a
RBC (10 ¹² /l)	28	8.94 \pm 0.82	9.89 \pm 1.76	9.74 \pm 1.22
	70	9.19 \pm 0.82 ^a	11.17 \pm 1.78 ^a	10.83 \pm 1.22 ^a
HGB (g/l)	28	96.01 \pm 10.45	101.00 \pm 11.56	99.50 \pm 11.68
	70	97.30 \pm 7.45 ^{ab}	113.00 \pm 13.65 ^a	103.5 \pm 11.68 ^a
HCT (l/l)	28	0.25 \pm 0.03	0.29 \pm 0.06	0.28 \pm 0.04
	70	0.28 \pm 0.04	0.33 \pm 0.06	0.31 \pm 0.05
Granulocytes (%):				
basophilic	28	0.20 \pm 0.42	0.20 \pm 0.42	0.40 \pm 0.52
	70	0.30 \pm 0.51	0.40 \pm 0.52	0.40 \pm 0.49
eosinophilic	28	9.90 \pm 1.37	10.10 \pm 1.72	10.90 \pm 1.45
	70	9.00 \pm 1.23	8.10 \pm 1.47	9.20 \pm 1.85
neutrophilic:				
- rod	28	1.60 \pm 1.71	0.80 \pm 1.62	0.80 \pm 0.92
	70	1.40 \pm 1.63	0.70 \pm 1.26	0.60 \pm 1.19
- segmentary	28	29.20 \pm 11.97	25.90 \pm 10.34	23.70 \pm 10.28
	70	28.10 \pm 10.79	24.50 \pm 9.39	22.80 \pm 10.18
Lymphocytes (%)	28	56.70 \pm 9.06 ^a	60.20 \pm 8.99 ^a	60.80 \pm 9.62 ^a
	70	58.70 \pm 9.62 ^a	63.50 \pm 7.13 ^a	63.70 \pm 8.02 ^a
Monocytes (%)	28	2.40 \pm 1.90	2.80 \pm 3.29	3.40 \pm 2.67
	70	2.50 \pm 1.40	2.80 \pm 2.20	3.70 \pm 2.89

a, b - $p \leq 0.05$; A, B - $p \leq 0.01$

Conclusion

The yeast preparations *Saccharomyces cerevisiae* added to concentrated feed had a beneficial influence on the meat performance traits of sucking lambs and their immune system.