



Influence of yeast *Saccharomyces cerevisiae* and β -1,3/1,6-D-glucan on protein level and its fractions in sheep's milk

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INTRODUCTION

Milk acquisition from sheep got many years tradition. It's a substrate for healthy and tasty products. Sheep's milk and its preserves are willingly consumed, not only by resident population of countries with long-standing tradition of eating those products, but also in countries where range of dairy products can be refilled by other articles. Casein is the most important milk protein, which got high biological value, equal to meat proteins and far greater than grain and legumes protein value. Whey proteins are the second basic milk protein fraction. Feeding can influence milk yield and its components content, including protein fractions.

The aim of the study was to determine the influence of dried yeast *Saccharomyces cerevisiae* and β -1,3/1,6-D-glucan on protein level and its fractions in sheep's milk.

MATERIAL AND METHODS

The experiment was performed on 39 Kamieniec ewes - divided into three equal groups I - control, II and III - experimental. During 70-days long lactation ewes in both groups were fed diets supplemented with dried yeast *Saccharomyces cerevisiae* (group II) or Biolex®-Beta S (group III). The prebiotics were mixed with CJ concentrate in amount: adequately of 50 g/kg or 3 g/kg group.

RESULTS

Yeast supplementation didn't cause substantial differences in protein level. In group feeding with β -1,3/1,6-D-glucan protein level in milk in 28th day was comparable, however in the terminal phase was significantly higher than in control group ($P \leq 0,05$). In 70th day of lactation differences in casein level came up. The higher value was in group III - 5,36 g/100g, ($P \leq 0,01$) in group II - 5,05 g/100g ($P \leq 0,05$) than in control group. Specimens affected casein fraction ratio, mostly in 70th day of lactation. In high lactation, milk protein from sheep receiving β -1,3/1,6-D-glucan, characterized significantly higher content of β -casein fraction in comparison to group I. It has been shown that, in milk proteins of sheep from group II in 70th day of lactation β -casein level significantly ($P \leq 0,01$) decreased, while κ -casein level significantly ($P \leq 0,01$) increased.

Tab. 1. Milk protein and it's fraction level in 28th day of lactation

Investigated parameters	Group					
	I		II		III	
	\bar{x}	s	\bar{x}	s	\bar{x}	s
Protein (g/100g)	4,98	0,43	4,96	0,44	5,02	0,36
Casein (g/100g)	4,20	0,29	4,27	0,40	4,17	0,4
α_s (%)	41,26	1,78	41,22	1,90	40,62	1,59
β (%)	44,85 ^a	1,96	45,65	1,42	46,30 ^a	1,19
κ (%)	13,89	1,17	13,31	1,05	13,08	1,45

a, b - $p \leq 0,05$

Tab. 2. Milk protein and it's fraction level in 70th day of lactation

Investigated parameters	Group					
	I		II		III	
	\bar{x}	s	\bar{x}	s	\bar{x}	s
Protein (g/100g)	5,55 ^a	0,88	6,00	0,35	6,16 ^a	0,53
Casein (g/100g)	4,63B ^a	0,64	5,05 ^a	0,39	5,36 ^a	0,41
α_s (%)	41,38	1,40	42,38 ^a	2,34	40,85 ^a	1,55
β (%)	46,21 ^a	0,75	43,39 ^b	2,61	46,14 ^a	0,85
κ (%)	12,41 ^b	0,94	14,23 ^a	1,08	13,01 ^b	1,10

a, b - $p \leq 0,05$; A, B - $p \leq 0,01$

CONCLUSION

In conclusion it can be claimed, that dried brewer's yeast *Saccharomyces cerevisiae* specimen didn't affected the protein level, while it affected on protein fraction ratio. β -1,3/1,6-D-glucan provoked increase of protein and casein content, without significant changes in each casein fraction level.