Influence of Chosen Stimulants on Selected Quality Ingredients of Cow's Milk and Rumen Parameters

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Abstract

The aim of this study was to determine the effect of liquid Biopolym FZT quality components in cow milk. During the reporting period was Biopolym, administered to dairy cows of Czech Pied breed in the selected milking robots equipped and furnished keeping herringbone parlor near Czech Budejovice. It found a slight increase in the average daily milk yield. The mean daily milk yield on the robot, which is dosed at Biopolym were 25.5 lt. On the other robot, which served as a control, the mean value of daily milk yield 23.5 lt. Because the components of milk a slight increase in fat levels in milk, while the impairment of protein. The barn equipped parlor, on the contrary to reduce fat content and increase protein content. Analyses were conducted rumen contents of fistuled dairy cows after dosage of Biopolym.

Keywords: Biopolym, components of milk, rumen

1. Introduction

Biopolym hydrolyzate is brown seaweed Ascophyllum nodosum. It contains vitamins, iodine, amino acids, alginate acid in the form of sodium alginate E 401 and other trace elements. It is designed for addition to drinking water and feed [1]. Seaweed support the development of intestinal microflora, digestion and stomach accelerates the transmission of nutrients into the bloodstream. This will also promote feed intake and nutrient utilization resulting from the diet [2].

Biopolym has diverse effects, one of which is an increase in milk yield in dairy cows [3]. Milk is an suitable medium for assessing the development of energy metabolism of dairy cows. Changes in metabolism, which have a negative impact on quality and

quantitative composition of milk, often manifested as rumen dysfunction. They are failures and proteosyntetic fermentation processes in the rumen due to a sudden change in diet, poor physical structure of feed, their low quality and digestibility and other shortcomings compared to the required quality [3]. If optimum nutrition is not sure, you can not expect good milk production. In assessing the level of nutrition assessment, however, is not enough nutrients in the rations, but the perspective is to consider the level of fermentation processes in the forestomach, because this decides the conversion of nutrients and milk production. The most important processes taking place in the rumen, the fermentation of carbohydrates and the conversion of the less valuable plant protein quality on protein - bacterial protein [4,5].

An integral part of the rumen microflora bacteria such as Cellulose, TMK producing bacteria and lactic acid, methane, proteolytic and lipolytic bacteria. Protozoa use easily fermentable sugars and polysaccharides, preventing the pH drop and stabilize rumen fermentation. Fungi have a high Cellulose and hemicelulolytic activity [6].

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Liberated ammonia is used by rumen microflora in bacterial biomass production. Microbial activity transformed nutrient rations are based nutritional body and precursors of milk cows [4].

2. Materials and methods

Section I, milk production
The two selected farms is monitored by liquid Biopolymu FZT effect on daily milk yield of dairy cows and quality milk constituents. The average annual yield on the two farms and the Czech spotted cows was 7650 kg CH1, respectively 7710 kg-CH2. Both breeds are provided with housing in groups open boxes and walls. Feeding is a form of TMR on feed tables. Slurry is summarized swept blades. The average diet in these two breeds.
Breeding,1-farm,(CH1)
This breed is located near the Czech Budejovice at an altitude of 440 m above sea level and is equipped with a milking robot. The production team has a capacity of 210 cows and are located in its three robots Astronaut 3000th The robot number 3 is added to liquid Biopolym FZT at a dose of 17 ml / cow / day dosed granules robot. Since this is a fairly large amount, the dose should be diluted 1:1 with water. The robot then recorded daily milk yield of each cow, which he visited. The components of the milk is then collected monthly from the scan performance. Daily milk yield is recorded as the number 1 robot, which serves as a control.
Breeding,2-farm,(Ch2).
Further breeding is also located in the South Bohemia region in a similar altitude. Experimental cows with a liquid formulation applied FZT 17 ml diluted with water to feed the TMR-based spraying. Daily monitors the amount of milk per milking machine and the components of milk every month at the performance tests.

3. Results and discussion

Section I, milk production Ch1
So far, the results show a slight increase in average daily milk yield
No. 3 on the robot 2 kg per head per day ± 0.5, the product is dosed cows. The inspection robot No.1. the values of the average daily milk yield is around the same level (Table 2,). Preparation Biopolym FZT begins to work after about 30 days. After the early performances of the fat values increase and decrease the value of protein. A slight increase in milk constituents also occurred, especially in fat, the protein was observed, rather a reduction. All of these findings, but results also depend on age, lactation number, stage of lactation, nutrition, whether the cows in good health condition and other factors (Table 3,). Another indicator is the normative content of urea and casein in milk. As is evident from Table 4, occurred in experimental groups to increase the content to normal values. As shown in table 4, an increase of urea is also visible in the experimental group by lactation. Casein was not affected by this intervention. Casein content values are statistically insignificant, but with a tendency to increase its content to 1 lactation. These results show a slight increase in milk yield in dairy cows administered Biopolym [3]. Slavík et al. [4] argue that it is important to ensure optimal nutrition, because of the subsequent achievement of the desired fermentation processes that determine the conversion of nutrients and milk production, which was achieved during the experiment. Lower values of urea in the milk of control cows show rather than the lack of a balanced ration in terms of nutrients. Most cows were in good health during the experiment, some have appeared for a short time changes in metabolism, which shows how [3, 4] could affect the composition of milk in Figure no.1. In assessing the representation of ammonia in the air stables were no differences between the experiment and analysis during the experiment monitored by a datalogger ammonia. This is due to good ventilation system in the barn walls with plastic mesh.

Assumptions panned out and published by [1] for broiler farms, or [2] for pigs. Raising the second. The dairy farm where he was Biopolym FZT applied in the experimental group sprinkling of TMR ration favorable outcomes were assessed in terms of influence on the spectrum of N-substances in milk Table1. The average daily productivity of the control group was 28.20 liters of milk per head per day, in increments of ± 0.3 kg. The experimental group was 29.75 liters daily production in increments of ± 0.20 liters. The results in the improvement of milk composition parameters are shown in Table 7 and Chart No. 5 The improvement is particularly apparent in the protein content in milk. The values of urea in the control loopholes were an average of 26.52 mg in 100 ml of milk in the experimental group 27.50 mg per 100 ml of milk. Similarly, levels of casein

in milk in the control group were 2.75%, 2.81% in the experimental were statistically insignificant. In attempts to further continue with it, they are included in the evaluation of two other plants of the same region [7]. For a detailed assessment will be overseen by the influence of the preparation for the composition of amino acids in milk.

Section II. Rumen metabolism

The verification of the preparation Biopolym FZT the fixation of N-compounds in rumen fluid and solid proportion of rumen contents are noticeable differences. This can see in table 5, 6, and figure 2.The rumen fluid from control samples was found to average content of ciliates 128,000 in 1 ml ± 28000 in experimental samples of 251,000 ± 38,000 in 1 ml of rumen fluid. This corresponds to a reduction in the proportion of solid chymus and the potential reduction in the feces [4,5,6].

Table 2. Daily milk yield on robbots Nr.3 (with Biopolym) and Nr.1 (without Biopolym)

Specification	Average	No of cows	Standard deviation
Robot č. 3	23.24	52	9.502
Robot č.1	22.07	50	8.949

Table 3. Valuables of milk fett, proteins and lactosse content in different lactations period

Specification	Fett control	Fett experiment	protein control	protein experiment
july	3.78	3.94	3.21	3.14
august	3.78	3.69	3.24	3.19
september	3.76	3.79	3.31	3.27
october	3.88	3.89	3.61	3.41
november	4.14	3.65	3.79	3.63

Table 4 Valuables of milk fett, proteins and lactosse content through 1. lactations period.

Specification	Fett control	Fett experiment	Protein control	Protein experiment	Lactose control	Lactose experiment
july	5.11	3.35	3.16	3.41	4.58	4.79
august	4.29	4.42	2.94	3.47	4.57	4.59
september	4.68	4.58	3.13	3.68	4.62	4.62
october	4.74	4.47	3.23	3.76	4.63	4.62

Table 5. Valuables of carbamid and casein in first month of different lactations period

Specification	Carbamid mg/100ml		casein %	
	control	experiment	control	experiment
1. lactation	22,25	28,04	2,66	2,67
2. lactation	23,5	26,62	2,61	2,62
3. lactation	25,36	29,2	2,59	2,61
4. lactation	26,67	26,45	2,46	2,46
other lactation	22	30,4	2,44	2,44

Table 5. a 6. % NL Content of nitrogen compounds in slurry

Slurry I. – before experiment			
	Orig. dry matter	NL%	%NL
liquid	2,56	2,49	97,27
content	20,35	3,08	15,14

Slurry II. – in experiment			
	Orig. dry matter	NL%	% NL
liquid	1,68	1,52	90,48
content	18,95	1,69	8,92

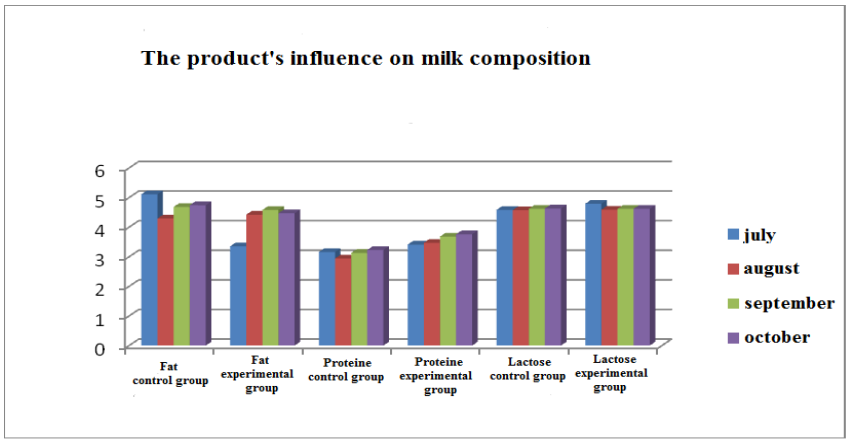

Figure 1. Valuables of milk fett, proteins and lactose content through 1. lactations period.

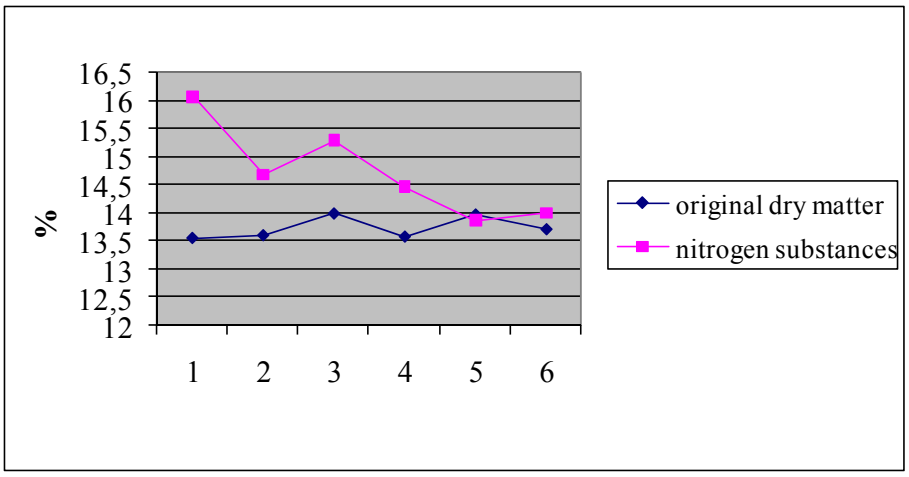

Figure 2: Comparing values of nitrogen substances and the original dry matter content in rumen content

4. Conclusions

The obtained results show that the liquid product Biopolym FZT performs a slight increase in the average daily milk yield and milk components values. In the case of milk constituents, were rather larger increase in value in fat than protein. This could be due to the current state of nutrition of dairy cows at first breeding The two animals were used to increase the ingredients in the experimental group, especially in protein content.

In accessing the preparat Biopolym FZT rumen metabolism and N-balance was found positive effects in terms of increased ammonia nitrogen, the number of ciliates and the reduction of N-compounds in feces. Confirmed the impact on the ammonia content in well-ventilated dairy barns. The economic evaluation depends on the exercise price of milk. In the experiments continued

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