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DETOXICATION PROCESSES AND BIOCHEMICAL PROFILE OF BLOOD AND MILK OF COWS WHEN FEEDING THEM BY SELENIUM, CHROMIUM, COBALT AND ZINK CITRATE

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The experiment was conducted on 16 mature cows of Ukrainian black and white dairy breed, the animals used were similar age (3-4 lactation), body weight (550-650 kg), lactation (1st month after calving). Feeding was normed by body weight and level of performance. In contrast to the control group, cows of II experimental group in the research period, basic diet (BD) were fed by chromium, selenium, cobalt and zinc citrate in an amount of 30 mg Cr, 25 mg Se, 20 mg Co and 20 mg Zn/kg per dry matter of diet. Animals of III experimental group — were fed similar mineral supplement in the amount – 30 mg Cr, 25 mg Se, 100 mg Co and 100 mg of Zn/kg per dry matter of diet in the research period. Mineral supplements were produced by nanotechnology method of M. Kosinova and B. Kaplunenko. Aqueous solutions of citrate these elements were added to daily feed each animal separately.

For laboratory tests once in pre-experimental period and on 30-th and 60-th days feeding of mineral supplements were taken blood samples from the jugular vein and milk samples from daily milk yield for determine its biological value. In addition, in these periods was determined level of the milk production by average daily milk yield.

The use in the diet of cows of II experimental group supplements chromium, selenium, cobalt and zinc citrates (30 mg Cr, 25 mg Se, 20 mg Co and 20 mg Zn/kg per dry matter of diet) led to an increase of the phenolsulfates content in the blood by 12,9% and fat content of milk — by 0,10% (absolute) in the first month of feeding. At the 2-nd month of feeding mineral supplements fat content of milk was higher by 0,16% (absolute) compared to the same index in animals of the control group. Average daily milk yields of cows after 1- and 2-month of feeding supplements were increased respectively by 2,4 and 6,6%.

Feeding cows of III group of similar mineral supplement with a higher content of cobalt and zinc (30 mg Cr, 25 mg Se, 100 mg Co and 100 mg of Zn/kg per dry matter of diet) promoted detoxification processes with significantly higher levels of formation of phenolsulphates and phenolglucuronides in blood, respectively by 19,3 and 15,2% at the 1st month and at the 2nd month with increase of the phenolsulfates concentration — by 19,0%. At the same time, fat content of milk increased at 1- and 2-month of its application accordingly by 0,07 and 0,20 %, while the average daily milk yield at 3,3 and 7,8 %.