THE EFFECT OF VARIOUS FORMS OF INORGANIC AND ORGANIC SELENIUM SUPPLEMENT ON THE COMPOSITION OF COLOSTRUM AND MILK OF THE GOAT

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The aim of this work was to study the effect of supplementation with different forms of selenium (Se) on Se level in the blood on the day of delivery and also on colostrum and milk composition in first 15 days of lactation. The experiment involved 35 goats divided into 5 groups. One control group (C not supplemented), 3 groups supplemented by different forms of organic Se (A lactate-protein complex, B selenium proteinate, E yeast-enriched Se with declared level of seleno-methionin) and one group (D) supplemented with inorganic natrium selenite. Selenium was added into feed from 6 weeks before delivery to the end of the trial. Blood samples were collected on the day of delivery; samples of colostrum and milk were taken on the same day and then day 1, 2, 3, 4, 5, 7 and 15 after delivery. Blood was tested for Se concentration while colostrum/milk was tested for Se, immunoglobulins (Ig), specific gravity, protein, casein, fat, lactose and fat-free dry matter.

It was found that all forms of Se-supplementation significantly increased Se level (P< 0.05) in blood and colostrum on the day of delivery. In group C was Se concentration in blood and colostrum 79.6±12.2 µg/l, resp. 21.4±9.5 µg/l, while in supplemented groups was Se concentration 152.6±28.4 (A), 167.2±34.5 (B), 152.9±30.4 (E) µg/l in the blood and in colostrum it was 84.3±69.4 (A), 98.7±21.7 (B), 90.4±49.8 (E), 89.5±8.9 (D) µg/l. There were no significant differences found amongst various forms of Se supplements. Levels of Se in colostrum were declining fast after first measurement and only 2 groups had significantly higher level of Se (P< 0.05) in milk on day 15: group B (Se-proteinate) had 29.6±13.4 µg/l and group E (yeast enriched Se) had 23.6±2.9 µg/l in comparison with control group C (12.9±4.4 µg/l).

We were unable to prove clear effect of Se supplementation on other compounds of colostrum and milk, however our results are showing positive effect of Se on the level of Ig in colostrum/milk that is documented by significant correlation between Se and Ig (r=0.62; P=0.01; n=280) when evaluating all samples, resp. (r=0.40; P< 0.05; n=35) when evaluating only first colostrum. When comparing milk composition on the day 15 with first colostrum it was found that Se level in milk was about 25%, Ig 8%, protein and casein 30%, fat 70%, fat-free dry matter 50% and lactose 110% of their levels in colostrum.

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