

## TREATMENT OF NANO PREPARATION IN LIPOSOMAL FORM OF CATTLE ENDOMETRITIS

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Endometritis remain one of the main bovine postpartum diseases that cause of the infertility, survival and welfare of dairy cows. Endometritis is an inflammatory disease caused by pathogenic bacteria and associated with delayed uterine involution and poor reproductive performance. Antibiotics are generally used in the treatment of endometritis; however, frequent usage of them is limited via the emergence of antibiotics multidrug resistant.

The main goal of research was the development and improvement of effective new nano-preparation for treatment of cattle endometritis. Thus we elaborated a new complex liposomal preparation with silver nanoparticles, vitamins and hormones.

For study of the therapeutic effectiveness of new liposomal nano-product we used cows with clinic symptoms of endometritis. The first group of cows received commercial preparation with AgNPs (control) at the dose of 20 ml/day during 6 days. Second group of animals was intrauterus treated of liposomal nano-preparation “Argoton” at the same dose. The animals condition was monitored by ultrasound and blood sampling was done for determine of hematological and biochemical parameters.

Using to the preparation “Argoton” for the cows with endometritis of the first group led to a decrease the concentrations of aspartate-aminotransferase and alkaline phosphatase in comparison with the control group, which was been administered the preparation “Sumer silver”. The increase in the concentration of urea on the 4<sup>th</sup> and 14<sup>th</sup> day after the introduction of drugs with silver nanoparticles by 1.5 and 2.5 times was detected in the blood serum of both experimental groups, especially in the second experimental group with “Argoton”. While the lower content of uric acid on the 4<sup>th</sup> day after the introduction of preparations with silver nanoparticles in both groups was observed. In the experimental group with “Argoton”, its level was reduced from 239±27 to 53.6±6.5 μmol/L, and remains at approximately this level throughout the study period. The significantly change the content of cholesterol, total protein, albumin, magnesium, phosphorus, calcium, estradiol and progesterone in the blood serum cows after treatment were not observed.

The results showed that new nano-preparation is effective substance for treatment of cattle endometritis without antibiotics (effectiveness more 98 %). It was confirmed by biochemical analysis of blood samples obtained before and after drug administration.

We explored the possibility of use the nanoparticle in liposomal form as new alternative drugs to fight against uterine infections in dairy cattle. The present study showed that the new liposomal preparation was effective on treatment of cattle endometritis without antibiotics.

**Keywords:** COWS, LIPOSOMAL PREPARATION WITH SILVER NANOPARTICLES, ENDOMETRITIS, BLOOD