



Comparison of the Immunogenicity of a Local Measles Vaccine and Other Nominal Vaccines

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Abstract: The article presents data from experiments on a comparative study of the immunogenicity of various concentrated GOA formol vaccines against emphysematous carbuncle of cattle and sheep with a local vaccine of the same name.

Keywords: Karason, a guinea-pig, instigator, Cl. chauvoei T-04 strain, O'D50, Kitt-Tarotsii, tumor, pathoanatomical changes, immunogen.

Introduction. One of the most pressing issues of the present is giving the rural population work, increasing the number of peasant farms raising cattle and sheep, and supplying our Republic with leather, meat, milk, and other milk and meat products. Achieving the aforementioned objectives will be challenging if certain factors are not eliminated because they have a negative impact on the growth in the quantity of livestock and their productivity.

Livestock that contract illnesses brought on by anaerobic pathogens suffer severe reproductive problems and die as a result. One of the illnesses that seriously harms the livelihood of families who raise cattle and sheep is cattle rust disease. All nations with developed livestock breeding industries have a high prevalence of this disease, which also occasionally affects our Republic.

A spore-forming, mobile anaerobic bacterium that both produces spores in the dead animal's body and the environment outside is the disease's primary cause. The measles-causing agent endures for a very long time in nature and cannot be eliminated. Food, water, soil, and manure are all sources of the spores that cause disease. The stimulus that enters the body of the animal is transferred to the blood, and through it, it multiplies in the area of the body where the muscles are well-developed but not well-oxygenated. Strong toxins and aggresins are released by the causative agent, poisoning the animal and destroying its entire immune system. As a result, the animal is unable to fight the disease. Sheep and cattle are more susceptible to blackness. The illness is an acute infectious disease that can last anywhere from one to six days. The majority of the time, sick animals receive ineffective treatment, and they pass away. The main strategy in the war against this illness is prevention. Animals that are susceptible to the disease are immunized against measles in order to prevent the disease. A vaccine is imported into our Republic from the Russian Federation in order to stop the disease. However, the Russian vaccine frequently fails to have the desired impact in protecting cattle from black disease in the hot climate of Uzbekistan.

One of the pressing issues facing researchers in the field of veterinary medicine is the separation of local epizootic strains of the causative agents of cattle distemper, study of their cultural, morphological, and biological characteristics, and development of a vaccine against distemper from them.

The local epizootic strain isolated from the regions of our country was used to create the "Condensed GOA formalin vaccine against the black disease of cattle and sheep," and its regulatory documents were prepared and approved.

Vaccine The "Condensed GOA formula vaccine against cattle and sheep scabies" prepared from regional epizootic strains was administered to cattle and sheep for several years on farms in the Samarkand, Kashkadarya, and Navoi regions. None of the vaccinated animals developed scabies disease.

It was decided to compare the immunogenicity of this domestic measles vaccine with the vaccine that bears the same name made by the Russian Federation's Armovir biofactory.

Methodology. According to the requirements of the most recent regulatory documents, the immunogenicity of vaccines was determined. Guinea pigs, Kitt-Tarotsii nutrient medium, the local X-04 strain of black cockroach, the Cl. chauvoei T-04 strain vaccine, the Armovir biofactory of the Russian Federation-produced vaccine, and disposable syringes were used in these studies. 20 guinea pigs, each weighing 350–450 g, were used in the experiment; 10 were placed in the control group, 10 in each of the two experimental groups. The first experimental group's pigs received 0.4 ml of "local vaccine against measles" subcutaneously, and the second group's guinea pigs received 0.4 ml of "the vaccine of the same name produced by the Armovir biofactory of the Russian Federation." Guinea pigs that had received vaccinations were kept in identical cages and under constant observation. A day-old culture of the X-04 strain of bacteria was injected into the muscles of the left hind leg of guinea pigs in both the experimental and control groups 16 days after inoculation. This dose was 20 times the predetermined O'D₅₀. For 5 days, the infected guinea pigs in the control and experimental groups underwent continuous observation. Based on the mortality and survival of guinea pigs in the experimental and control groups following infection, the immunogenicity of the vaccines was assessed.

Results. Piglets in the first experimental group received the "Condensed GOA formalin vaccine against bovine and sheep rabies," made from the local epizootic T-04 strain, on the first day of the experiment. They displayed a slight rise in body temperature, increased breathing, and signs of depression, but no changes in appetite or behavior. There may be a slight swelling at the injection site that can be felt with the hand.

Pigs in the second experimental group that had received the Armovir biofactory of the Russian Federation's eponymous vaccine also displayed a slight rise in body temperature, increased breathing, signs of depression, and sluggishness in their movements and appetite. There was a noticeable swelling where the injection was made.

Body temperature, respiration, and heart rate increased, and the pigs in the unvaccinated control group 3 lost their appetite. When made to move, it was demonstrated that the piglets were depressed, inactive, and did not press the leg that was directed toward the stimulus. The injection site had a noticeable amount of swelling, as felt by palpation. 28 hours after the challenge, one guinea pig from the control group passed away in the afternoon. This piglet was discovered to have a reddish-blue skin tone, a swollen rear left leg, air bubbles under the skin, and discharge coming from the mouth.

The clinical indicators of the experimental group 1 pigs did not deteriorate on the second day of observation. Both their appetite and movement were normal. The injection site did not experience any swelling.

The second experimental group of guinea pigs experienced depression, an increase in breathing and heart rate, and a slight rise in body temperature. They are less active and have a decreased appetite. The injection site felt very swollen when touched.

Pigs in the third control group had higher body temperatures, decreased appetites, faster heart rates, and increased respiration. Pigs were seen to exhibit sweating symptoms. They make no movement in response to outside factors. between 36 and 40 hours after infection, during the first half of the day, three guinea pigs died.

The clinical indicators of the pigs in experimental group 1 did not deviate negatively on the third day of the experiment. Both their appetite and movement were normal. The injection site did not experience any swelling.

It was discovered that six of the guinea pigs in experimental group 2 had more serious conditions. They displayed a rise in body temperature, rapid breathing and heartbeat, and depression. Pigs are known to have a slow appetite and remain motionless. It was discovered that because of its slow reaction to outside stimuli, the trigger does not press the sent leg when forced to move. When the injection site was palpated, a significant warm swelling was visible.

On the third day of the experiment, 4 guinea pigs in control group 3 died. Depression, total indifference to outside influences, a lack of appetite, and inactivity were noted in this guinea pig. Air bubbles can be felt when pressed at the injection site and there is swelling there.

The clinical indicators of the pigs in experimental group 1 showed no negative changes on the fourth day of the experiment. Both their appetite and movement were normal. On palpating the injection site, there was no sign of swelling.

It was discovered that two of the guinea pigs in experimental group 2 were in critical condition. They displayed a rise in body temperature, rapid breathing and heartbeat, and depression. The pigs were seen to have lost their appetite and to be immobile. It was discovered that the trigger does not press the sent leg when forced to move, indicating that it is not responsive to outside influences. The injection site felt very swollen when touched. That day, two of the guinea pigs in this group perished.

On the fourth day of the experiment, two guinea pigs perished in the control group 3 piglets. The guinea pig displayed depression, a lack of appetite, inactivity, and inattention to outside influences. It was discovered that there was fluid leakage, hair loss, and swelling where the injection had been made.

The clinical indicators of the pigs in experimental group 1 showed no negative changes on the fifth day of the experiment. Both their appetite and movement were normal. On palpating the injection site, there was no sign of swelling.

Four guinea pigs in experimental group 2 were found to have severe conditions. They displayed a rise in body temperature, rapid breathing and heartbeat, and depression. The pigs were seen to have lost their appetite and to be immobile. It was discovered that the trigger does not press the sent leg when forced to move, indicating that it is not responsive to outside influences. The injection site felt very swollen when touched. That day, two more of the guinea pigs in this group perished.

On the fifth day of the experiment, the final guinea pig in control group 3 also passed away.

The rear left leg of the dead piglets was swollen, the skin was reddish-blue, air bubbles could be felt under the skin when pressed, and bloody bubbly fluid was coming from the mouth when they were examined. Air bubbles and a dark red liquid had accumulated under the skin of the back left leg when they were pathologically examined. The muscles were discovered to be dark red-black in color and easily rippable. The liver has changed, there is reddish fluid in the abdominal cavity, and the heart muscles are relaxed.

Dead guinea pigs' pathological components (heart, liver, and muscle fragments) were removed, inoculated with Kitt-Tarotssi medium, and then placed in a thermostat for growth. The samples revealed that the nutrient media was discolored and that air bubbles were present at the media's top. Smears are made from these settings and placed on the product's windows. It was stained using the Gram method and examined under a microscope. Gram-positive bacilli, which are the cause of black disease, were discovered to be straight and slightly curved, with semicircular ends, and to be present both singly and in pairs in the microscope's field of view.

Conclusion. From the results of comparative immunogenicity tests of the "Condensed GOA formol vaccine against rabies of cattle and sheep" produced from the local epizootic T-04 strain and the namesake vaccine produced by the Russian Armovir biofactory, it can be seen that the vaccine produced from the local epizootic T-04 strain is compared to the namesake vaccine produced by the Russian Armovir biofactory and was found to have high immunogenicity and showed full compliance with current regulatory documents, and it was concluded that this vaccine is sufficiently immunogenic.

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