3. It is advisable to organize serological surveillance, which can be useful for identifying reservoirs of CCPP. At the state level, it is necessary to create a program for effective control of the contagious carpine plevropneumonia in the Republic of Tadjikistan.

Key words: contagious goat-pleuropneumonia, goats, goat breeding, goat infectious diseases, Tajikistan, Mycoplasma mycoides (var. Capri).

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CONTAGIOUS CAPRINE PLEUROPNEUMONIA AMONG THE MARKHOR IN SOUTHERN TAJIKISTAN

Проаналізовано спалах контагіозної плевропневмонії кіз в заповіднику «Дашти Джума» Шурабадського району, Хатлонської області у 2011 році в популяції винторогих козлів. Описано клінічні і патолого-анатомічні ознаки захворювання, методи лабораторного підтвердження діагнозу за допомогою бактеріологічних і молекулярних методів. Запропоновано і апробовано оригінальний комплексний препарат на основі антибіотиків для лікування диких винторогих козлів в неблагополучному осередку. Доведено ефективність запропонованого методу лікування та контролю контагіозної плевропневмонії кіз в популяції диких тварин.

Ключові слова: контагіозна плевропневмонія кіз, винторогі козли, лікування контагіозної плевропневмонії кіз, інфекційні хвороби диких тварин, Таджикистан, Mycoplasma mycoides (var. Capri).

Contagious caprine pleuropneumonia (CCPP) is an infectious disease of goat characterized by croupous pneumonia and serous-fibrinous pleurisy. The disease is common in more than 30 countries in Africa and Asia. For the first time the disease was described in Algeria in 1873, and in the 80-90s of the last century it was diagnosed in Switzerland, France, Italy, India, Turkey and Mongolia. In Russia, this disease was first observed in 1895. Contagious caprine pleuropneumonia is one of the most severe diseases of goats. The disease causes serious economic losses in East Africa and the Middle East, where it is endemic [1].

The disease affects the respiratory system in goats, causes hard pneumonia with complications and often leads to the death of diseased animals. During a primary outbreak can affect 100% of the population and die to 80%. According to the OIE information during outbreak in wild ruminants the morbidity rate was 100% in wild goats and 83% in Nubian ibex and the mortality rates were 82% and 58%, respectively on this species. Until recently it was only confirmed outbreak CCPP in wild ruminants.

In the south of Tajikistan, in the reserve "Dashti Jum" of the Shurabad district, Khatlon region in September 2010, among the wild goats, markhor (*Capra falconeri heptneri*), we noted the massive disease and death of animals [3].

Markhor lives on the upper reaches of the river Panj, from Darwaza in the east down the Panj River to the line Chubek–Kulyab, and it be threatened on extinction.

This species listed in the Red Book, "The international community is the protection of nature" of the Tajik Republic. The species needs constant protection.

In 2011, during the epizootic monitoring of the territory of the Dashti Jum Reserve, more than 70 corpses of markhor were registered.

The dead animals were found mostly off the river's banks, evidently the markhor went down during the fever to quench their thirst and cool the body with water.

Clinical signs in infected animals were examined. The disease was acute and in the clinical examination from young animal seen increase in body temperature (41-42 C), rapid breathing, congestion of the mucous, serous discharge from the nose and eyes. Sick animals lag behind the herd, but thus the appetite remains.

The duration of the incubation period with natural infection was not accurately determined. According to our observations, the incubation period under natural conditions of infection is probably

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10-12 days. In the external examination of animals that died from infectious pleuropneumonia, no deviations from the usual pattern were observed.

At pathoanatomical autopsy of dead or forcedly killed animals, we observed a catarrhal inflammation of the mucous membrane of the upper respiratory tract. The mucous membrane was edematic and hyperemic, and bronchopneumonia was noted. In the lungs, focal areas of atelectasis and adhesions between the walls of the lungs and the ribs were observed.

Samples from the parenchymal organs were sent to the Reference Laboratory CIRAD, Montpelier, Lyon, France.

When bacteriological study of pathological material from the forced killed markhor was isolated mycoplasma. To cultivate the mycoplasma culture was used Hayflick Agar Base with added horse serum, sodium pyruvate and penicillin, it is recommended for detection of mycoplasmas.

Mycoplasma culture was tested in real-time polymerase chain reaction. When tested in real-time PCR were used primers to identify specific regions of the genes Fusa, gepQ, GyrB and rpoB. Sequencing of the mycoplasma genome was also performed. Molecular studies have confirmed that the mycoplasma isolate is the species of *Mycoplasma Mycoides* subtype *capricolum* [2].

Clinical-epizootic, pathoanatomical and laboratory studies testify to the fact of the outbreak of CCPP among the markhor in the Dashti Jum Reserve of the Shurabad district of the Khatlon region. The etiological significance of Mycoplasma Mycoides subtype capricolum was clearly established in the mass animal disease.

Markhor is a species of animals that disappears and needs protection, the preservation of this population is the task of the authorities of the Republic of Tajikistan. Also infected and sick markhor create a risk of infection for domestic goats. In order to preserve the markhor population and control the contagious goat plevropneumonia in the region near the Dashti Jum Reserve in Shurabad district, Khatlon region, special measures were carried out.

We preparation the mix and it was scattered in the places of probable migration of the markhor. The composition of the mix: oxytetracycline hydrochloride – 1000 g; tylosin tartrate (Norotil bolusi, Norbrook) – 100 g; complex of vitamins (Multivitamin, Norbrook) – 1000 ml, crushed barley – 100 kg. The mixture was thoroughly mixed and packaged 5 kg per bag.

The mix was scattered at a rate of 1000 animals in 20 points along the route of the animals. Later on daily for 30 days we controlled how the markhor eats the mix. The efficacy of measures was evaluated from the case of the markhor mortality during the daily site survey. The first 10 days after the application of the mix, 5 cases of markhor mortality were noted. The following days of observation, the case of markhor mortality was not recorded.

Conclusion. In September 2010 we noted massive disease and death of markhor (Capra falconeri heptneri) in the south of Tajikistan in the Dashti Jum Reserve of the Shurabad district, Khatlon region. This disease had clinical and pathologic anatomical signs of Contagious caprine pleuropneumonia. From tissue samples of dead animals was isolated Mycoplasma thereafter identified as *Mycoplasma Mycoides* subtype *capricolum* by RT-PCR and seqensing metods. This confirms an outbreak of Contagious caprine pleuropneumonia in the wild, among markhor population. Treatment of markhor with us original antibiotics based mix on gave a positive result and the outbreak was stopped.

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Контагиозная плевропневмония среди винторогих коз на юге Таджикистана

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Проанализирована вспышка контагиозной плевропневмонии коз в заповеднике «Дашти Джум» Шурабадского района Хатлонской области в 2011 году в популяции винторогих козлов. Описаны клинические и патолого-анатомические признаки заболевания, методы лабораторного подтверждения диагноза с помощью бактериологических и молекулярных методов. Предложен и апробирован оригинальный комплексный препарат на основе антибио-

тиков для лечения диких винторогих козлов в неблагополучном очаге. Доказана эффективность предложенного метода лечения и контроля контагиозной плевропневмонии коз в популяции диких животных.

Ключевые слова: контагиозная плевропневмония коз, винторогие козы, лечение контагиозной плевропневмонии коз, инфекционные болезни диких животных, Таджикистан, Mycoplasma mycoides (var. capri).

Contagious caprine pleuropneumonia among the markhor in southern tajikistan

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An outbreak of contagious carpine plevropneumonia in the Dashti Jum Rreserve of the Shurabad region, Khatlon region in 2011 on the population of markhor was analyzed. Clinical and pathoanatomical signs of the disease, methods of laboratory confirmation of the diagnosis with the help of bacteriological and molecular methods was described. An original antibiotics based complex mix for the treatment of wild goats has been proposed and tested. The effectiveness of the proposed method of treatment and control of contagious carpine plevropneumonia in the wild animal population is proved.

Key words: contagious carpine pleuropneumonia, wild goats, treatment of contagious carpine pleuropneumonia, infectious diseases of wild animals, Tajikistan, Mycoplasma mycoides (var. Capri).

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