

SARCOSPORIDIA OF DOMESTIC ANIMALS OF KUVA DISTRICT OF FERGANA REGION AND THEIR SPECIES COMPOSITION

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ABSTRACT	KEYWORDS
Internal organs of domestic animals (cattle, sheep and goats) living in different ecological conditions of Kuva district of Fergana region (neck, muscles, esophagus, tongue, heart, diaphragm, and liver, lungs, kidneys, and spleen).	Sarcocyst, sarcocytosis, cyst, trophozoite, scorocyst, ocyst, parasite, intermediate host, main host, herbivore, carnivore.

One of the important biological features of determining the species of any parasite is its specific relationship to its vertebrate host.

Sarcosporidia are widespread as parasites of reptiles, birds and mammals (Kalyakin, Zasukhin, 1975). Sarcosporidia were found in 3 families of reptiles, 13 families of birds, and 10 families of mammals. The total number of sarcocyst species is more than 70 species, of which 45 species live in mammals, 15 species live in birds, and 10 species live in reptiles (Zasukhin, 1977).

A. Gadoyev (1976) was the first in Uzbekistan to list 8 species of sarcosporidia.

He was able to identify the main owners of 2 of them.

1. For *S. Fusiformis* (fox, wolf), and 2. For *S. Tenella* (cat, dog).

This information is based on the results of conducted experiments.

When determining the types of sarcosporidia relevant for each host, attention was mainly paid to the morphological characteristics (color, shape, size of the cytoplasm of trophozoites; location and size of the nucleus inside the cell).

Species composition

Table-1 Sarcocysts of sheep (Ovis aries)

Types of Sarcosporidia.	Intermediate masters
<i>S.tenella</i> . Railliet, 1886	Sheep
<i>S.fusiformis</i> . Railliet, 1897	Cattle
<i>S.moulei</i> . Neve-Lemaire, 1912	Goats
<i>S.miescheriana</i> . Kuhn, 1865	Pigs
<i>S.bertrami</i> . Doflein, 1901	Horses
<i>S.horvathi</i> . Rats, 1908	Chickens
<i>S.camellei</i> . Mason, 1913	Camels
<i>S.asinus.n.sp</i> Gadoyev 1978	Donkeys

S. tenella type of sarcosporidia was described by many foreign scientists: in Russia - A.G. Alekseev (1911), in South Africa - Walker (1920) (according to Yakimov, 1931), Transvaal (1921), in Holland Rademaker (1922), in Kazakhstan - N.G. Levchenko (1963), in the Leningrad region - I.A. Kolabcki (1964) and in Italy - S. Rezipoet (1974).

Cysts of sheep sarcosporidia are oval, more elongated and ovoid in shape, surrounded by a multi-layered shell (Kolesnikov, 1935; Hoiz, 1954, 1955; Ludvik, 1958, etc.)

The size of such cysts is different: T. S. Kobbold (1866) - 0.11-0.3 mm, V. L. Yakimov (1931) - 0.04-2.0 mm, N. G. Levchenko (1963) - 0.12-2.32 x 0.03-0.25 mm.

Small cysts are also found - 0.12 x 0.12 mm and 0.18 x 1.28 and relatively larger cysts - above 0.80 - 0.180 mm.

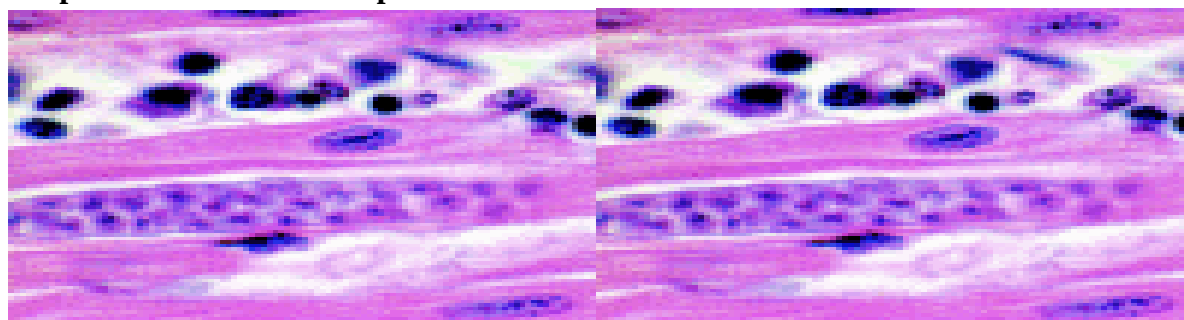
We tested all internal organs of the sheep for *S. tenella*.

We witnessed damage to the heart muscles, esophagus, diaphragm, neck muscles, tongue, kidneys and liver tissues of the sheep.

Sarcosporidia microcysts and trophozoites were found in smears prepared from the above-mentioned organs.

Microcysts and trophozoites of sarcosporidia found in sheep's organs have different shapes: microcysts are ovoid, oval, egg-shaped and rounder, and trophozoites are semi-ovoid, banana-shaped, oval-shaped and bean-shaped.

Trophozoites found in sheep muscles.

**Table-2.**

We know that the shape of microcysts depends on their location: for example, the shape of microcysts

found in the sputum of the esophagus is oval and oval, and the shape of microcysts in the heart is ovoid and round.

They are stained blue using Romanovsky-Giemza dye.

Microcysts of sarcosporidia found in different muscles and even in one muscle differ in size.

When we measured the size of 100 microcysts of sarcosporidia, we found that their length averaged from 0.1 mm to 1.520 mm and width from 0.07 mm to 0.370 mm.

Long (1.520 mm) microcysts were found in the esophagus, while short (0.80 mm) microcysts were found in the heart muscle.

When other organs of the sheep were examined, microcysts of sarcosporidia were not found, that is, they were found only in the muscles of the esophagus and heart, and trophozoites were found in all organs.

In addition, in the course of our research, we found a microcyst with a round shape and a very small diameter - 11.5 μ m in size from the preparation prepared from sheep's heart muscles;

its skin has a two-layer contour, and inside it there are three trophozoites, we observed that one of these trophozoites is smaller than the two and is bean-shaped.

S. tenella in muscle tissues of internal organs of sheep

size of cysts and trophozoites

Table-3.

Checked bodies	Sistalar,mm		Trophozotes, mk	
	Length	one	Length	one
Esophagus	0,17-1,425	0,04-0,056	1,09-15,5	4,0-5,6
Language	-	-	11,4-16,5	4,5-5,4
NeNNeck	-	-	10,0-14,6	3,6-4,8
Heart	0,1-0,730	0,1-0,245	12,5-16,0	4,2-5,4
Diaphragm	-	-	12,4-15,5	4,6-5,4
Liver	-	-	11,4-14,5	3,7-5,8
Kidneys	-	-	10,4-13,7	2,8-4,6



3-rasm: Sarcocystis tenellaning electron mikroskopda ko'rilgan sxematik tuzilishi.

- a) polar circle (periodic pole).
- b) discoid granules.
- c) interlaced fibrils in the pellicle.
- g) central cells.
- d) vacuoles.
- e) mitochondria.
- g) nucleus.
- z) nucleus.

As a result of the researches and studies of many scientists (Heydorn, Rommel, 1972; Fayer, Leek, 1973; Vershinin, 1974), they found that the main host for this type of sarcosporidia is the organisms belonging to the genus of cats and dogs.

b) Sarcocysts of cattle (*Bostaurus*)

Our research showed that the microcysts and trophozoites of cattle sarcocysts belonging to the species *S. Fusiformis* are different: microcysts are sac-shaped, ovoid, round, oblong and oval; trophozoites - hemispherical, sickle-shaped and sometimes oval-shaped.

When we examined 100 microcysts, we saw that their sizes vary within a certain range: length - from 0.130 to 0.390 mm, width - from 0.20 to 0.155 mm, and they are dark blue in color.

We observed that the skin of cysts consists of many cells.

Among dark-blue stained microcysts of sarcocysts, we observed the presence of young and mature ones of different sizes and shapes.

The shape of microcysts depends on the localization of their location: microcysts isolated from the heart muscles are oval and round, and the shape of microcysts located in the esophagus is oval or oblong, etc.

Young microcysts were usually ovoid in shape, small in size - 70 x 55 µm, mature ones - oval, length -190 µm and width -70 µm.

Young and immature microcysts are filled with a large number of trophozoites, which are irregularly located close to each other and resemble a granular mass.

Thus, the trophozoites of the cattle sarcocyst we studied differ from each other in terms of shape and special characteristics.

Our research has shown that the nucleus of bovine sarcocyst trophozoites is located extrinsically, that is, near the rounded part of the cell.

It is worth noting that in our research, when we examined 110 cattle from Kuva district of Fergana region for sarcosporidia, we witnessed that all of them (100%) were infected with sarcosporidia.

Size of cysts and spores of S. fusiformis

Table-4.

Authors	Years	Cyst size (mm)		Spore size (µm)	
		Length	one	Length	one
Yakimov	1931	5-20	0,65-0,2	12,6-15,2	3,40-6,08
Kolesnikov	1935	0,388	0,095	-	-
Ribaltovskiy	1963	0,60-0,268	0,040-0,160	-	-
Ustarxanov	1969	0,1-0,7	0,1gacha	19,0gacha	3,0gacha
Mutaxodjaev	1970	0,007-0,09	0,006-0,06	8-14	1-5,9
A.Gadoyev	1978	0,125-0,387	0,18-0,145	12,4-17,5 (15,0-0,4)	3-5,9 (4,4-0,1)
Our data	2021	0,122-0,357	0,19-0,142	-	-

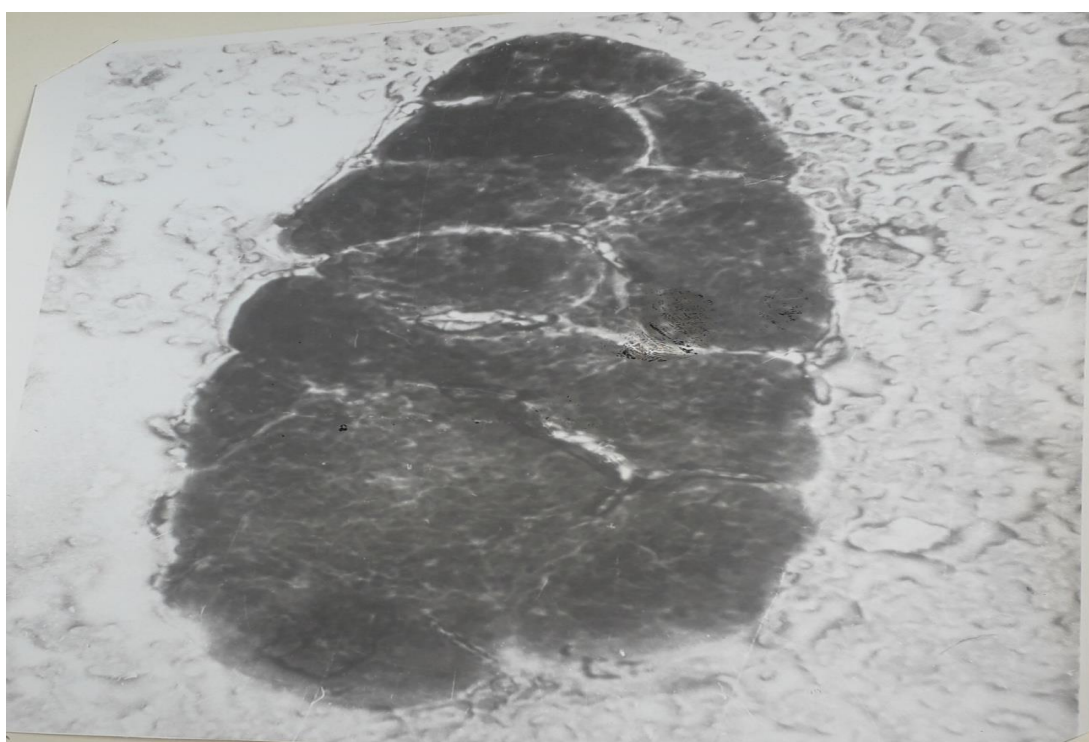


Figure 5: Ovoid microcyst of *S. fusiformis* from cattle heart.

c) Sarcocysts of goats.

(*Cerchahiecus*)

The first career of sarcosporidae in goats was found in Europe.

(Moulei, 1887; Neven-Lamaire, 1912) The main host of *S. moule* is unknown.

Sarcosporidia of goats in USSR Kolesnikov, 1935) in Ulyanov region (Lubyanisky 1956).

Sarcosporidium was also found in goats in Leipzig in the GDR (Vorcherd, 1962).

The size of tarofozoids of this species (moulei 1887) is 14.67 x 17.0 mm, 4.07 x 6.25 µm, according to N.M. Kolesnikov, the length of the large microcyst is 274.2 µm, and the width is 45.4 µm.

In the conditions of Uzbekistan, it is more common than 74.7% among goats (Gadoyev-1978).

Despite this, no one else checked until A. Gadoyev checked.

Therefore, we present the morphological characteristics of sarcocysts found in goats.

A form of trophozoites found mainly in the heart of goats;

semi-oval and oval.

The result of measuring semi-oily trophozoites of different sizes - 150 parasites was as follows;

The length is from 13.0 to 16.5 μm , and the width is from 4.5 to 5.5 μm .

The diameter of the round nucleus is 3.5 μm , the length of the oval nucleus is 4.5 μm , the width is 3.5 μm .

Orange-red granules are visible in the core.

Oval-shaped trophozoites are 13.5 to 17.0 μm long and 5.0 to 7.5 μm wide.

The nuclear side is rounded.

The diameter of the round nucleus is 4.0 μm , the length of the oval nucleus is up to 5.0 μm , and the width is up to 4.5 μm .

Saxosporidia trophozoites found in goats are identical in shape, size, and color to those previously reported in the literature.

Therefore, we included the sarcocysts found in the heart muscles of goats into the species *S.moulei* Neve-Lemaire, 1912.

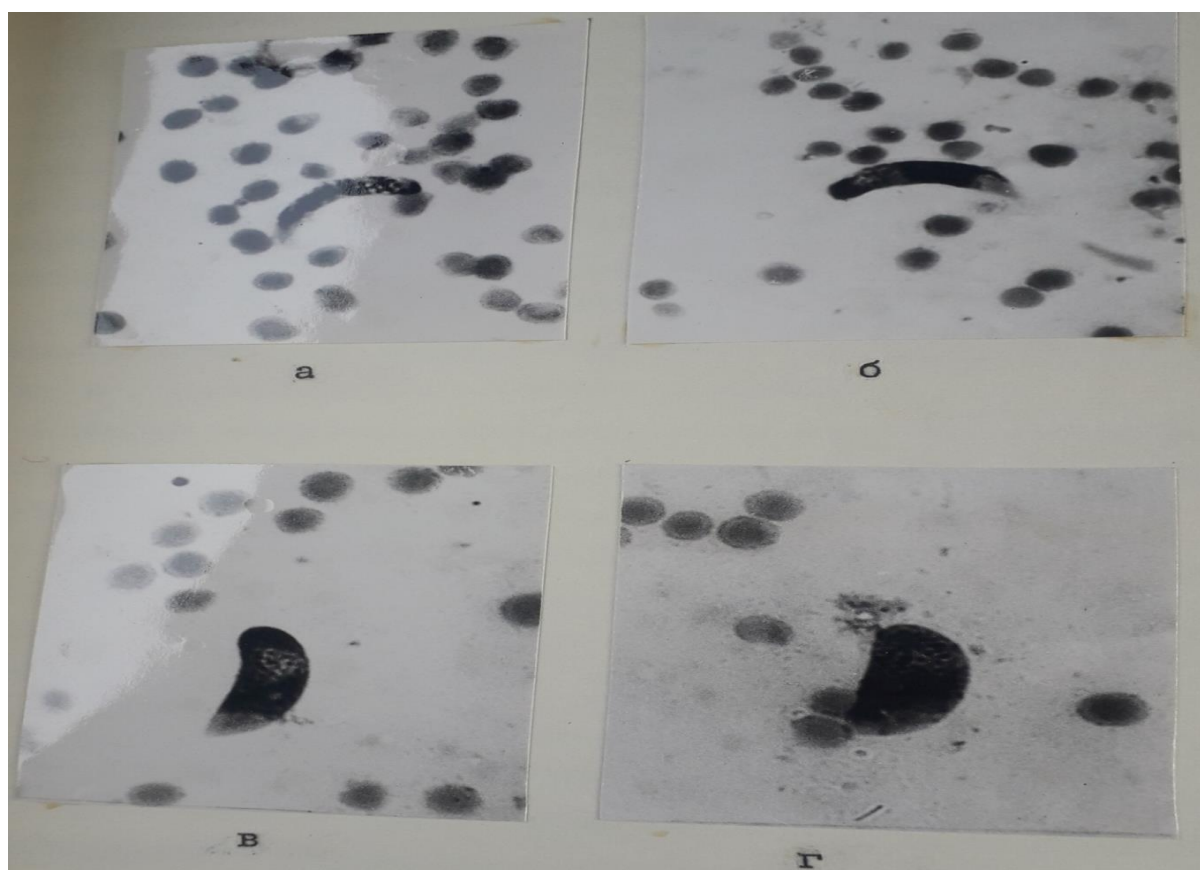


Figure 6: Trophozoites of *S. moulei* found in the hearts of goats with different shapes: a, b - semi-oval, v, g - oval

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