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FAUNA AND ECOLOGY OF NEMATODE OF THE GENUS HAEMONCHUS (NEMATODA: HAEMONCHIDAE) - ENDOPARASITES OF ANIMALS

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Cover Page Footnote

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Erratum

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FAUNA AND ECOLOGY OF NEMATODE OF THE GENUS *HAEMONCHUS* (NEMATODA: HAEMONCHIDAE) - ENDOPARASITES OF ANIMALS

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Abstract: *Currently 13 species of the considered genus parasitizing the abomasums of ungulate animals have been recorded. The ungulates of the family of Cervidae (1) Antilocapridae (1), Giraffidae (1), Bovidae (12) and Camelidae (2) were recorded as definitive hosts of this parasite. Individual populations of the Haemonchus species were recorded in Asia, Europe, America, Africa and Australia. Sex ratio in Haemonchus contortus between females and males is 1:5. One female lays from 150 to 10.000 eggs per day.*

Keywords: *haemonchus, fauna, nematoda, endoparasit, animals*

ФАУНА И ЭКОЛОГИЯ НЕМАТОДА РОДА HAEMONCHUS (НЕМАТОДА: HAEMONCHIDAE) - ЭНДОПАРАЗИТЫ ЖИВОТНЫХ

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Аннотация: *В настоящее время зарегистрировано 13 видов рассматриваемого рода, паразитирующих на сычуге копытных животных. Копытные семейства Cervidae (1) Antilocapridae (1), Giraffidae (1), Bovidae (12) и Camelidae (2) были зарегистрированы в качестве окончательных хозяев этого паразита. Отдельные популяции видов Haemonchus были зарегистрированы в Азии, Европе, Америке, Африке и Австралии. Соотношение полов у Haemonchus contortus между самка и самец составляет 1: 5. Одна самка откладывает от 150 до 10.000 яиц в день.*

Ключевые слова: *гемонхус, фауна, нематода, эндопаразит, животных*

ҲАЙВОНЛАР ЭНДОПАРАЗИТЛАРИ HAEMONCHUS АВЛОДИ (НЕМАТОДА: HAEMONCHIDAE) НЕМАТОДАЛАРИ ФАУНАСИ ВА ЭКОЛОГИЯСИ

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Аннотация: *Ҳозирги вақтда туёқли ҳайвонларининг ширдони паразитлари ҳисобланган ўрганилаётган авлоднинг 13 тури қайд этилган. Туёқли ҳайвонларнинг Cervidae (1) Antilocapridae (1), Giraffidae (1), Bovidae (12) ва Camelidae (2) оиласининг вакиллари ушбу паразитнинг асосий хўжайини сифатида қайд этилган. Haemonchus авлоди турларининг индивидуал популяциялари Осиё, Европа, Америка, Африка ва Австралияда қайд этилган. Haemonchus contortus нинг ургочи ва эркакларнинг жинс нисбати 1:5 ни ташкил қилади. Бир ургочи индивид кунига 150 дан 10 000 тагача тухум қўяди.*

Калит сўзлар: *гемонхус, фауна, нематода, эндопаразит, ҳайвонлар*

Nematodes in the genus *Haemonchus* Cobbold, 1898 parasites in the abomasum ungulates and widely represented in terrestrial ecosystems. These nematodes are widespread thoughout the world, including in Uzbekistan and are recognized as the most pathogenic helminthes of of in cattle, sheep, goats and onsiderable research has been conducted on those species. Loss inflicted by these parasites important livestock [1,3,6,9].

Therefore, knowledge of the mechanisms of formation of faunal assemblages these nematodes will establish ranges of distribution parasite hosts examine population structure and define the interactions between hosts and parasites, as well as to predict the basis of identification of biotic and a biotic determinants of communities “parasite – host”. Availability of information on biodiversity these communities are a crucial basis for determining the reactions in the "host-parasite" and the potential causes of the disease under the prevailing conditions of environmental change.

The purpose of research study of faunal composition and ecology of the nematode genus *Haemonchus* - endoparasites ungulates.

Currently, according to the literature [1-6, 8] and original research in the world fauna recorded 13 species of nematode genus *Haemonchus*, parasites in the abomasum ungulates. As the definitive hosts marked ungulates family of Cervidae, Antilocapridae, Giraffidae, Bovidae and Cervidae **(table).**

According to the table, as definitive hosts haemonchus installed 13 species of ruminants: Bovidae-12, Cervidae-1, Giraffidae-1, Antilocapridae-1 and Camelidae-2 species. Separate populations of species in ecosystems haemonchus registered in Asia, Europe, America, Africa and Australia.

Haemonhus wild and domestic ungulates quite intensively studied in the literature accumulated versatile material. However, many questions remain ecology

haemonchus still not clarified, in particular features of the settlement, the sex ratio and fertility.

Environmental characteristics for helminthes genus *Haemonchus* in farms and small farms Surkhandarya, Kashkadarya, Namangan and slaughterhouses of Tashkent and Namangan helminthological full autopsy conducted on sheep Skrjabin method [7]. Carpological studies were performed by conventional methods Berman – Orlov [3]. Material served eggs and mature individuals spontaneously from *H. contortus* infected sheep in Uzbekistan.

Studies have shown that live throughout haemonchus mucosal surface of the abomasums of sheep. In the fundal and cardiac portion of the abomasums concentrated most individuals *H. contortus*. To study the sex ratio was determined by the index floor (IP), i.e. the ratio of females to males studied species for a certain period of time. We frequently encountered less prolific species SP varied seasonal more essential. In April - June and August - October and later SP *H. contortus* increased to 2.0-3.0, fluctuating during the year from 0.3 to 2.8. In *H. contortus* amount females during the year are 3 times more than males. This ratio of females to males is 1:5.

Distribution species of the haemonchus on taxonomic groups of definitive hosts

Table

Species of nematode of the genus *Haemonchus*	**Definitive hosts – Artiodactyla**															
		Cervidae						**Bovidae**								
	Camelidae	Cervinae	Odocoileina	Alcinae	Rangiferinae	Giraffidae	Antilocapridae	Cephalophinae	Tragelaphin	Alcelaphina	Hippotragin	Reduncinae	Antilopinae	Saiginae	Caprinae	Bovinae
Haemonchus contortus	+	+	+	+	+		+		+	+	+		+	+	+	+
H.bedfordi										+		+			+	+
H.horaki										+		+				
H.dinniki													+			+
H.lawrencei								+								
H.longistipes	+														+	
H.krugeri												+				
H. mitchelli									+							
H.okapiae						+										
H.tataricus															+	
H.similis															+	+

H.placei																+
H.vegliai									+							

Thus, the index floor is high in populations with significant numbers of both sexes. In *H. contortus* he often above 2.5 and is maximal in the seasons when the external environment has the most favorable conditions for the development of free- form haemonchus, and their number in host reaches a maximum. It should be noted, the higher female fertility, the lower the index of the floor and vice versa.

About fertility haemonchus can be judged by the number of eggs laid per female per day, or the number of eggs that are found in 1 g of feces of animals in terms of one individual or female form. In the study of animals in the presence of intestinal strongyles found that the most prolific are haemonchus. One female lays per night from 150 to 10,000 eggs.

These data suggest that haemonchus fertility varies considerably. In 1 g of feces in the animals were detected based on 30-45 female eggs.

In calculating the ratio of the number of mature individuals *H.contortus* and quantity of their eggs in one ball feces of sheep weighing 0.3-0.5 turned 1:1.2.

According to our observations indicated that females lay *H.contortus* 6-8 times more eggs than *Trichostrongylus spp*. or *Ostertagia spp*.

Marked by us and many other investigators haemonchus fertility fluctuations depended on several factors, among which, one should first identify the factors that determine the seasons. Leading of them, apparently, are the temperature and humidity of the environment, because in seasons when these climatic factors were most favorable for the development of free-living larvae haemonchus. Last reaching puberty and delayed large number of eggs. This is supported to some extent by our studies on the seasonal dynamics haemonchus and expertise.

Fecundity haemonchus studies have shown that there is a correlative relation to body size and age of the female nematodes.

Fertility is undoubtedly depended on age. *H.contortus* females begin to lay the maximum number of eggs in 30-40 days after infection of animals. This rise is dependent on the type of helminth tension caused by it in the host immune responses, and many others, is not always clear reasons and lasts from 6-9 days to 1-2 months. Thereafter, the number of eggs decreases gradually and finally stopped completely their isolation.

We noted a sharp increase in fertility haemonchus spring after eating sheep young grasses.

Thus, we can assume that the daily egg production haemonchus seasonal changes that are dependent reproductive activity of nematodes.

Highly productive haemonchus or relatively long survive in hosts or their embryos weakly stable to the effects of environmental factors and is not stored for a long

time than the same embryos little prolitic strongyles. In this haemonchus theoretically have the same chance of being host and populate them to such an extent that it does not pose a threat to animal and, ultimately, to those who are haemonchus. Haemonchus that are self-regulating organism, which, as already noted, even the sex ratio is directly proportional to the fertility of females.

The above self-regulation strongyles closely related to ecology of helminthes and their hosts and, of course, not always clearly evident in experiments and can be violated in vivo. In the latter case haemonchus or do not survive in the host, or develop such host-parasite relationship in which animals overpopulate haemonchus excessively and very sick.

In this regard, we believe that any anti helminthic activities must begin with an environmental analysis of the specific situation and parasitological primarily with finding and eliminating the causes of disturbances in ecosystems haemonchus self-regulation, which was composed of these nematodes.

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