قسم الطفيليات
كلية الطب ـ جامعة أسيوط
رئيس القسم : أ٠د/ ماهر مختار

دراسة عن الطفيليات التي تصيب الخيول بمحافظة أسيوط

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قام الباحثون بدراسة الطفيليات التي تصيب عدد ١٨٤ حيوانا من الفصيلة الخيلية (١٣٨ حمار و ٣٤ حصان و ١٢ بغل) من مناطق مختلفة بمحافظة أسيوط بصعيد مصر ٠ وشملت الدراسة عاما كاملا في الفترة من أول اكتوبر ١٩٨٦ وحتى نهاية سبتمبر ١٩٨٧ ٠ وقد أمكن اثناء هذه الدراسة تقييم وتقدير نسب الاصابة بالطفيليات المختلفة التي تصيب الخيول في منطقة أسيوط وهذه الطفيليات هي : نوتاليا اكواي ٣ر١٠٪ ، بابيزيا كابالي ٥ر٦٪ ، هابرونيما مسكي ٨ر٤٥٪ ، باراسكارس اكورم ٥ر١٢٪ ، سترونجيلس فولجارس ٤ر٦٠٪ ستيراريا اكوينا ٩ر٢٢٪ ، فاشيولا جيجانتيكا ٣ر٦٪ و دكتيوكولس ارنفيليدي ٣ر٨٪ ٠

كذلك أمكن الباحثون دراسة ظهور يرقات الفيلاريا لكل من ستاريا اكوينا وانكوسركا ريتكيولاتا في الدم الطرفي وقد أمكن لأول مرة معرفة أن هذه اليرقات تظهر في الدم ليلا ونهارا دون اختلاف كذلك أمكن دراسة ظهور يرقات الفيلاريا خلال عام كامل لمعرفة مدى انتشارها في الفصول المختلفة وأمكن معرفة أن هذه اليرقات تكون اكثر انتشارا خلال فصل الصيف والربيع والخريف وتقل في فصل الشتاء ٠

ويعتبر هذا المسح لطفيليات الفصيلة الخيلية هو الأول من نوعه في منطقة أسيوط بصعيد مصر ٠

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A STUDY ON THE PARASITES INFECTING EQUINES IN ASSIUT GOVERNORATE

(With 4 Tables & 4 Plates)

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SUMMARY

A survey of the parasites of 184 equines (138 donkeys, 34 horses and 12 mules) from different localities in Assiut Governorate Upper Egypt, was done within the period from October 1986 till Sept. 1987. The following rates of infection were estimated: Nuttallia equi (10.3%), Babesia caballi (6.5%), Onchocera reticulata microflariae (32.6%) Setaria equina microfilariae (19.6%) Habronema muscae (45.8%), Parascaris equorum (12.5%) Strongylus vulgaris (60.4%), Setaria equina adults (22.9%), Fasciola gigantica (6.3%) and Dictyocaulus arnfieldi (8.3%). The distribution of these parasites among donkeys, horses and mules was estimated and recorded. Microfilariae of Setaria equina and Onchocerca reticulata are for the first time found to be completely non-periodic, showing the same parasitaemia levels day and night. Seasonal variation of microfilarial infections is studied and was found to be more common during autumn, spring and summer than winter. The present work is the first survey of equine parasites in Assiut Upper Egypt.

INTRODUCTION

Equines play an essential role in the transportation in the field work of the farmer especially in under developed countries. However, these animals have not yet been given sufficient care, although, they are always subjected to many parasitic diseases which affect viability and lowering its laborious work.

Studies on the fauna of parasites of equines have received much attention in recent years in various countries. In BRAGUE (1959) JIRINA found 35.9% of horses infected with Setaria equina. In BULGARIA, STOIMENOV (1963) found that 26.2% of horses infected with S.equina. also, BLACKWELL (1973) and MACRUZ, et al. (1981) studied the clinical manifestations caused by Strongylus worms, S.equina, Habronema sp., D.arnfildi, P.equorum and Fasciola sp. which are the cause of digestive distrubances, diarrhoea, anaemia, Swelling of the lower eye lid, Conjunctiva and dermatitis. On the other hand, RYLANDS (1971) and ORR (1972) recorded that P.equorum might perforate the small intestine of equines, with severe peritonitis. Also, FINAZZIL, et al. (1977), detected Habronema sp. Larvae in the C.T. of the prepuce and glans penis of equines. In Egypt, SELIM and FOUAD (1964) found microfilariae of S.equina and O.reticulata in the blood of 38.8% of horses 26.1% in donkeys and 12.5% in mules in Giza province. Also, HELMY, et al. (1967) incriminated O.reticulata as the cause of fistulous withers.

FAHMY (1972), observed that donkeys were much more affected with filaria (38.2%) than horses (23.2%) and mules (15%).

Blood Protozoa of equines have attracted many investigators in several parts of the world as BASSET and AUGERL (1931) who described the symptoms of equine piroplasmosis to be fever weakness, jaundice and oedema of the breast, and sometimes of the limbs. In 1944, Prudil recorded an outbreak of equines due to B.caballi. ANGELOVSKI (1957), reported B.caballi infection which was 45% and B.equi 55% in horses. SIMPSON, et al. (1967) described B.caballi & B.equi in Florida. In the same year, Ulienberg, reported N.equi infecting five cases of horses. Furthermore, FRIEDHOFF and LIEBISCH (1978) described the clinical symptoms in case of B.caballi infection in the form of fever, anaemia, icterus, gastroenteritis and Lameness. In Egypt, MOHAMED (1979), found that 53.7% of donkeys were infected with N.equi and 3 out of 654 animals infected with B.caballi.

Therefore, the present authors were stimulated to study the prevalence of parasites infecting equines in different localities in Assiut Governorate, Upper Egypt, in an attempt to furnish a better picture of parasites of Egyptian equines in this territory.

MATERIAL and METHODS

Random samples from 184 equines (138 donkeys, 34 horses & 12 mules) were collected during one year from different localities in Assiut territory, (Suburbs and near the villages). These animals were admitted to the clinic of the faculty of Vet. Med. Assiut University within the period from October 1986 till September 1987.

For studying the microfilariae and the blood protozoa a thich and thin blood films were prepared from the ear veins of all the investigated animals. Films were made 3 times daily at regular intervals during day and night for three days to study the microfilarial periodicity among the microfilaraemic animals. Moreover, the blood was mixed with fulleborn fluid 1ml. blood + 10ml. fluid) to facilitate the examination of blood for the microfilariae according to SELIM and FOUAD (1964). Out of the preveously mentioned animals, fourty eight were sacrificed and their lungs, livers and intestines were examined for adult parasites.

RESULTS

(1) Protozoan parasites:

Nuttallia equi and Babesia caballi were encountered in the red blood corpuscles of equines with a total percentage of infection 10.3% & 6.5% respectively (Table 1, & Plate 1). Fourteen out of 138 donkeys (10.2%) were found infected with N.equi and nine out of 138 (6.6%) also, were infected with B.caballi in the same host. In horses, the infection rates with N.equi and B.caballi were 11.8% respectively. Mules were noticed to be infected with the two protozoal parasites at a rate of 8.3% for each species. Mixed infection was encountered in donkeys and horses at 1.5% & 2.9% respectively.

(2) Microfilariae:

Microfilariae of O.reticulata and S.equina were encountered. The rates of infection were 31.2% & 18.8% in donkeys, 41.2% & 23.5% in horses and 25% & 16.7% in mules respectively.

(Table 2 & Plate 2). A mixed infection with the two microfilariae were encountered in 13.7% in donkeys, 17.7% in horses and 16.7% in mules.

Monthly investigastion of equine microfilariae in peripheral blood all over one year was done. Studies revealed a flactuation of infection rate with microfilariae among the different species of equines. (Table 3 & Plate 3). In donkeys, the rate of parasitaemia was highest during April and May. While it was lowest during March. In horses, the highest rate was in june and September while in mules, it reached 50% during November, April and September.

Daily monitoring of the microfilariae in the peripheral blood showed no periodicity, where the microfilariae appeared at the same concentration day and night.

(3) **Helminth Parasites:**

Six helminth parasites were encountered (Table 4 & Plate 4). Donkeys were found to harbour all the six parasitic helminths encountered. The infection rates were recorded (S. vulgaris 56.4% H.muscae 46.2%, S.equina 23.1%, P.equorum 10.2%, D.arnfieldi 10.2% and F. gigantica 5.1%). In horses, the most common species of helminths were S.vulgaris 71.2%, followed by H.muscae 42.9% and S.equina 28.6%. The less common species encountered were P. equorum and F.gigantica with an infection rat of 14.3% for each species (Table 4 & Plate 4). In mules, only three species of helminths were encountered; S.vulgaris 100% and H.muscae & P.equorum 50% for each species. Mixed infection was noticed in most of equines examined.

DISCUSSION

The identification of the parasites collected during the present investigations was done according to that described by YORK and MAPLESTONE (1926), MORGAN and HAWKINGS (1951) YAMAGUTI (1961) and LEVINE (1973).

Various studies have been conducted concerning the parasites of equines in different countries of the world. SALERNO (1949), GORSHOV (1958), MOTOV, et al. (1959) PETROVIC (1958), CLARKSON and OWEN (1959), HEISH, et al. (1959) JIRINA (1959), STOIMENOV (1963), KUROGAWA, et al. (1969) ERDOGAN, et al. (1973), DAMODARAN, et al. (1978), and LYONS, et al. (1983).

In Egypt, SELIM and FOUAD (1964), HELMY, et al. (1967), FAHMY (1972), MOHAMED (1979), MORCOS (1979), and AHMED (1984) also studied the parasites among the different species of Egyptian equines. Most of them gave the prevalence of infection among equines which differs according to locality as well as other factors of climatic and environmental conditions.

From tables & Plates 1, 2, 3 & 4, it is obvious that equines were encountered with nine parasites of different species and genera. The high prevalence infection rates among equines were S.vulgaris which reached to 100% in mules, followed by horses 71.2% and finally donkeys 56.4%. The mean rates of infection in general were 60.4% among equines. the infection with H.muscae was also considered high, the worms were found in 50% of mules, then 46.2% in donkeys, while horses harboured the low infection rate which was 24.9%. The mean rate of infection was 45.8%. On the other hand, the mean infection rates with other parasites were 22.9% S.equina 12.5% P.equorum 8.3% D.arnfieldi and 6.3% F.gigantica.

The equine microfilariae encountered in peripheral blood were O.reticulata (32.6%) and S.equina (19.6%). Moreover, the blood protozoa noticed were N.equi (10.3%) and B.caballi (6.5%).

The high rate of infection among equines in Assiut territory may be attributed to different factors of climatic, environmental conditions and hygienic disposal of animal manure, as well as the arthropod vectors which are distributed in areas such as Assiut town, Upper Egypt. Monthly observations of the distribution of equine microfilariae revealed a highest rate of infection during autumn, Summer, and Spring, while the prevalence of infection was minimum in winter. This is in agreement with that mentioned by SELIM and FOUAD (1964). The present authors suggest that, the age of the animals, breed, sex, the chronicity of the disease and the locality may affect the incidence of infection. The equine microfilariae was studied and it appeared to be non periodic and these results disagree with that mentioned by MHOHAMED (1979) who stated that the highest mean number of microfilariae was at mid night while the lowest mean number of microfilariae was during the period between noon and 4 P.M. Also, the present results disagree with those obtained by BUSA (1955), who reported that the microfilariae tend to reach their maximum in the blood in the evening. The present authors explained this phenomena by the active feeding period of the arthropod vector which is not restricted to certain time. Furthermore, prophylactic measures against the frequency of infection with these parasites as well as the arthropod vectors should be considered by our authorities to prevent the distribution of infection with special references to Arab horses which are considered to be one of the most economic animals in Egypt.

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Table (1)
Showing the infection rates of Blood protozoa in Equines in Assiut Governorate

Equines	Nuttallia equi							Babesia caballi						
	No. ex.	No. inf.	% inf.	Single s.l. No.	%	Mixed l. No.	%	No. ex.	No. Inf.	% inf.	Single s.l. No.	%	Mixed l. No.	%
Donkeys	138	14	10.2	12	8.7	2	1.5	138	9	6.6	7	5.1	2	1.5
Horses	34	4	11.8	3	8.9	1	2.9	34	2	5.8	1	2.9	1	2.9
Mules	12	1	8.3	1	8.3	-	-	12	1	8.3	1	8.3	-	-
Total (Mean)	184	19	10.3	16	8.7	3	1.6	184	12	6.5	9	4.9	3	1.6

Table (2)
Showing the infection rates of Equines microfilariae in Assiut Governorate

Equines	Onchocerea reticulata infs.							Setaria equina infs.						
	No. ex.	No. inf.	% inf.	Single s.l. No.	%	Mixed inf. No.	%	No. ex.	No. inf.	% ing.	Single sp. No.	%	M.l. No.	%
Donkeys	138	43	31.2	24	17.5	19	13.7	138	26	18.8	7	5.1	19	13.7
Horses	34	14	41.2	8	23.5	6	17.7	34	8	23.5	2	5.8	6	17.7
Mules	12	3	25	1	8.35	2	16.7	12	2	16.7	-	-	2	16.7
Total (Mean)	184	60	32.6	33	17.9	27	14.7	184	36	19.6	9	4.9	27	14.7

Table (3)

Showing the infection rates of microfilariae among equine from october to September 1987 (Microfilaria of Onchocorea reticulata and Mfs of Setaria equine)

Time of examination (Month)	Donkeys			Horses			Mules			Mean		
	No. ex.	No. inf.	% inf.	No. ex.	No. inf.	% inf.	No. ex.	No. inf.	% inf.	No. ex.	No. inf.	% inf.
October 1986	13	4	30.8	4	2	50	1	-	-	18	6	33.3
November	12	3	25	3	1	33.3	2	1	50	17	5	29.4
December	10	3	30	2	-	-	1	-	-	13	3	23.1
January 1987	8	1	12.5	2	-	-	-	-	-	10	1	10
February	11	2	18.2	2	-	-	-	-	-	13	2	15.4
March	13	1	7.7	1	-	-	1	-	-	15	1	6.7
Aprii	10	6	60	2	1	50	2	1	50	14	8	57.1
May	12	7	58.3	4	2	50	1	-	-	17	9	52.9
June	13	5	38.5	3	2	66.6	1	-	-	17	7	41.1
July	10	3	30	4	2	50	-	-	-	14	5	35.7
August	14	4	28.6	4	2	50	1	-	-	19	6	31.6
September	12	4	33.3	3	2	66.6	2	1	50	17	7	41.2
Total	138	43	31.2	34	14	41.2	12	3	25	184	60	32.6

Table (4)

Showing the infection rates of various helminths infecting Equines in Assiut Governorate

Host	No. ex.	Habronema muscae		Parascaris equorum		Strongylus vulgaris		Setaria equina		Fasciola gigantica		Dictyocoulus arnfieldi	
		No. inf.	% inf.	No. inf.	% inf.	No. inf.	% inf.	No. inf.	% inf.	No. inf.	% inf.	No. inf.	% inf.
Donkeys	39	18	46.2	4	10.2	22	56.4	9	23.1	2	5.1	4	10.2
Horses	7	3	42.9	1	14.3	5	71.5	2	28.6	1	14.3	-	-
Mules	2	1	50	1	50	2	100	-	-	-	-	-	-
Total (Mean)	48	22	45.8	6	12.5	29	60.4	11	22.9	3	6.3	4	8.3

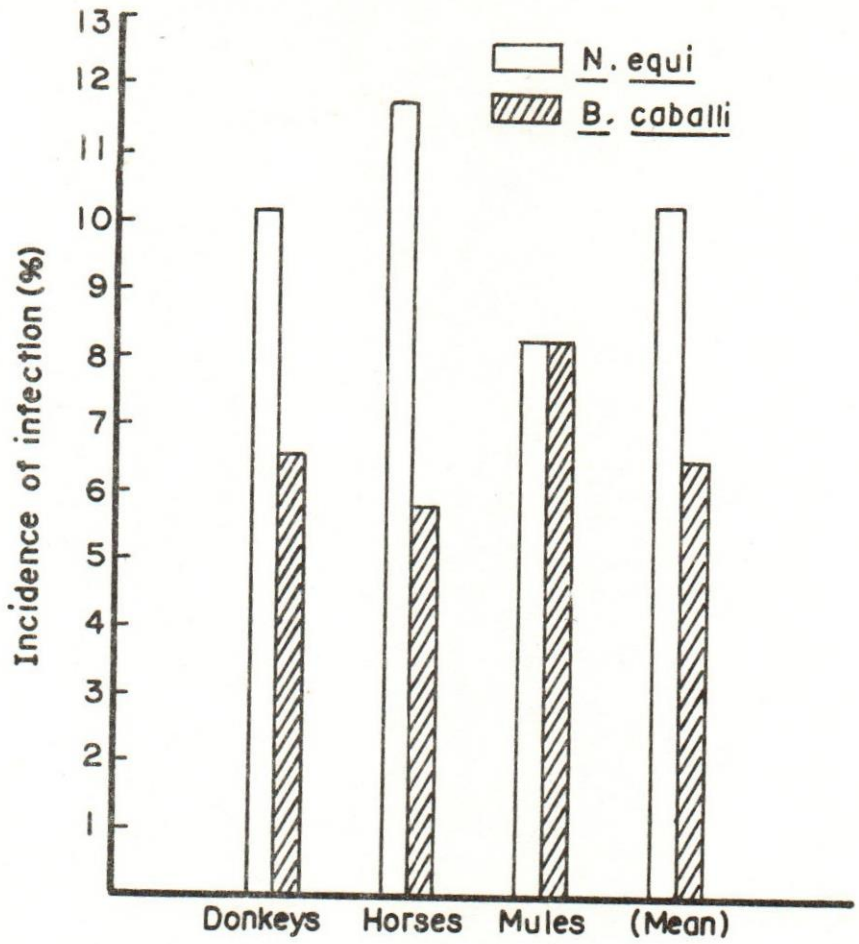

Plate 1 : The infection rates of blood protozoa in Equines in Assiut Governorate.

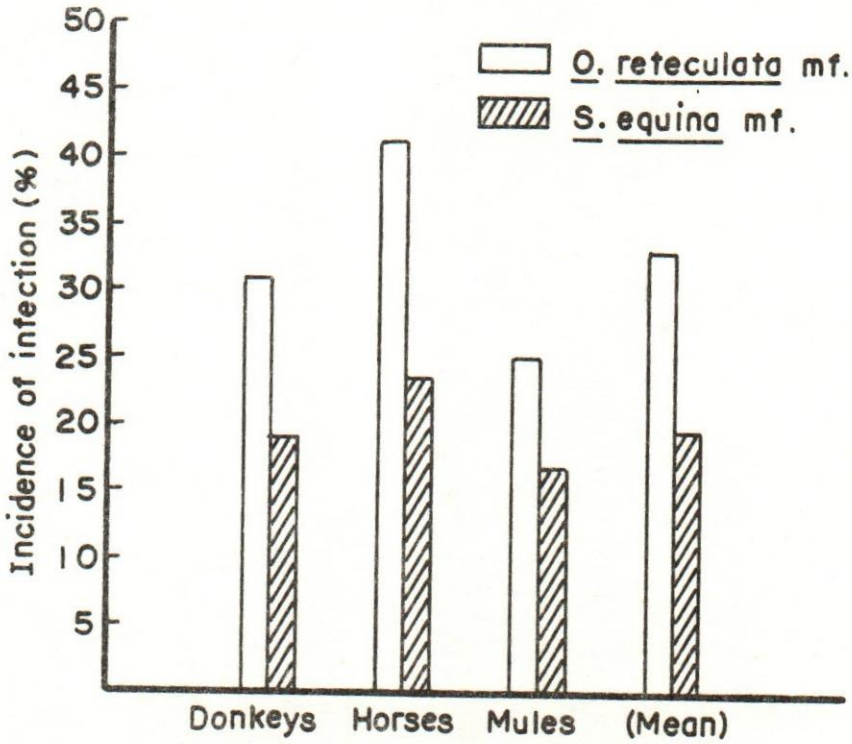

Plate 2 : The infection rates of Equines microfilariae in Assiut Governorate.

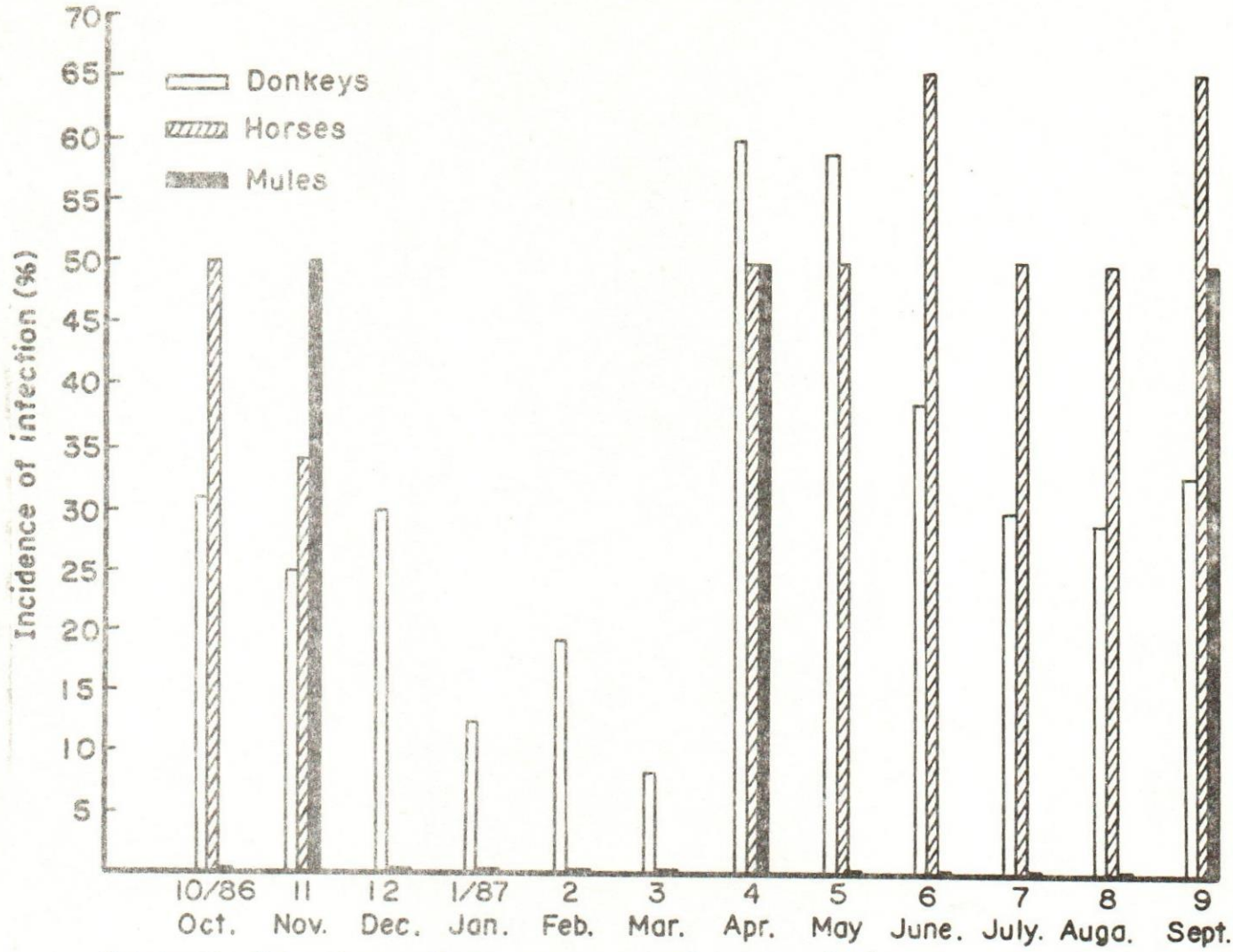

Plate 3 : The infection rates of microfilariae among Equines from october 1986 to september 1987.

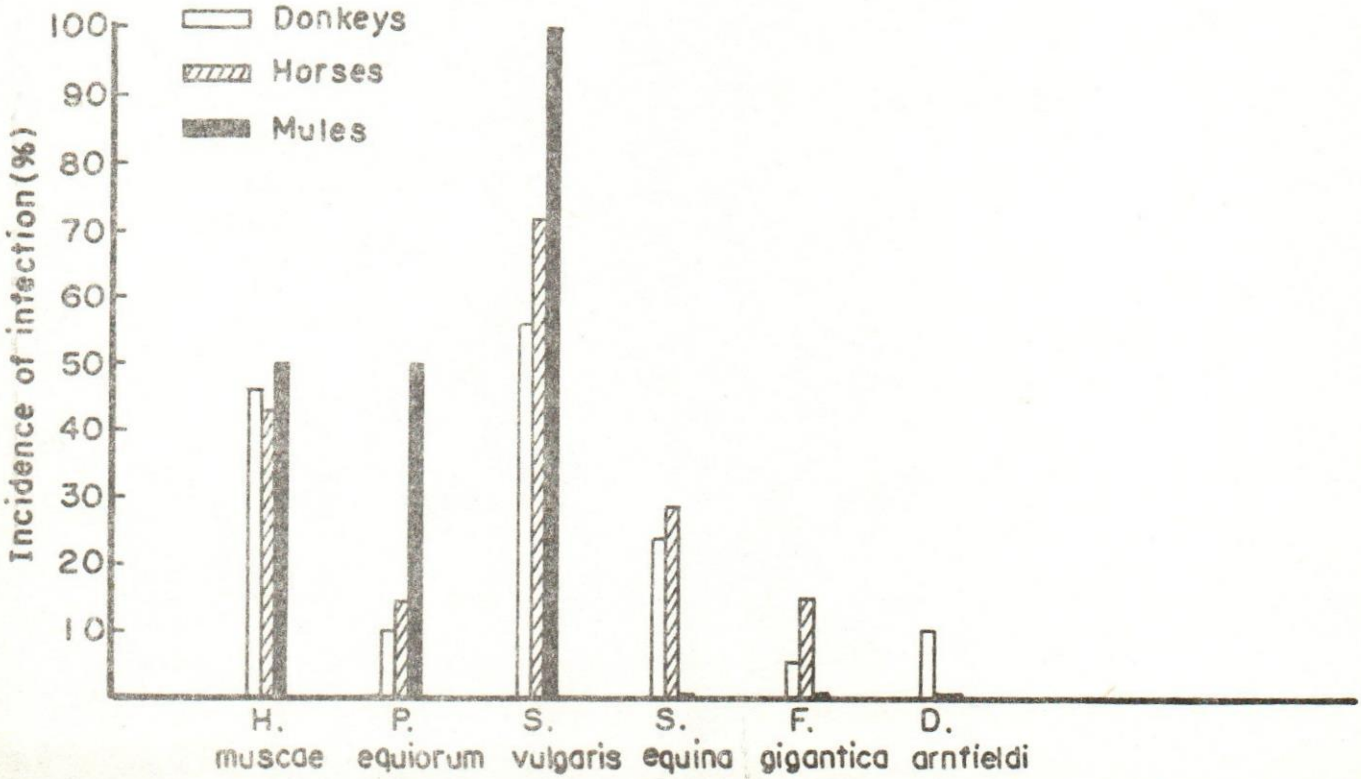

Plate 4 : The infection rate of helminths infecting Equines in Assiut Governorate.