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Major gastro-intestinal parasites affected camel population in Al Ain , UAE

BY

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The current paper lists and describes the prevalence of different camel's gastro-intestinal parasites (GIT) as recorded by the Veterinary laboratory over the period from 1994 up till now .

The annual accumulated data showed that Trichostrongylus Spp and Nematodirus Spp. were the most prevalent GIT parasites among camel population. The blood suckling haemonchus species came next followed by Stronyloide as well as Moniezia Spp. but at much lower rate . The Cooperia Spp and Trichuris came lastly at very low incidence rate . The incidence of camel coccidiosis . is increasing but the data needs further verification due to lacking the facility of oocyst counting for each sample.

Introduction

United Arab Emirates (UAE) has distinct environment and harsh climate. The inventory of camel

gastro-intestinal (GIT) parasites is vary with reference to the ecological conditions , camel species and the adopted camel rearing system . Consequently ; the necessity to know the most prevalent GIP is of utmost importance to have a better understanding of our environment and evaluation of the treatment policy applied at the area of study .

Dromedaries harbored several species of GIP . Trichostrongylus spp . Haemonchus longistipes , Strongyloides papillosus , Trichuris Spp and Nematodirus abnormalis , Oesophagostomum spp.,Marshallagia spp. and Cooperia spp. were among the most common recorded helminths in Dromedaries in countries with harsh climate similar to that existed in UAE (El-Bihari, 1985 and Hayat et.al., 1998) .

In a study conducted at Al Ain as early as 1986 / 1987 over 12 months period ; using data of 1500 race camels ; El Khawad et.al., 1992 pointed out that the incidence of Trichostrongylus spp. , Strongylus spp. , Nematodirus spp. , Haemonchus spp. , Trichuris spp. and Moniezia spp. were 49 , 48.7 , 21 , 20 , 3.3 and 1.8 % respectively . Camel coccidiosis was existed at a rate of 1.1% in the same study . In addition , a preliminary survey conducted at Al Ain region in 1989, El.Khouly et.al., (1989) ; demonstrated that Haemonchus longistipes , Nematodirus abnormalis , Strongylus papillosus and Moniezia expansa were the most common recorded GIP.

An outbreaks of camel coccidiosis in United Arab emirates was reported by Kinne and Wernery,1997) .

The accumulated data concerning parasitological investigation of the last ten years assayed by the Veterinary laboratory belongs to the Department of Agriculture and livestock were analyzed to demonstrate the prevalence of most common GIT parasite at Al Ain region , UAE .

Material and Methods

Fresh fecal samples were routinely submitted daily to the Veterinary laboratory belongs to the Department of Agriculture and Livestock for parasite investigation . The samples assayed were covered all the rural areas of Al Ain region (eastern region of Abu Dhabi, UAE**)** .

Simple flotation method using concentrated sodium chloride salt solution was routinely applied as described by Soulsby (1982) . Regarding samples examined for Eimeria spp. , a modified sedimentation method was applied as advised by Kinne and Wernery (1997) . The prepared sample was allowed to stand at a level surface for about 30 minutes then the supernatant was decanted and about 0.3 ml of the sediment was collected using disposable plastic Pasteur pipette , and examined .

Results

The incidences of positive cases over the period of study were recorded in Table (1) . Each recorded season defined to be started from August and end by July of the following year .

The collective data showed that the numbers of assayed samples were doubled from about 25,000 samples in 1994/1995 season to about 55,000 samples in 2000 / 2003 . The incidences percentage of positive cases followed a descending pattern from about 40 % in the early seasons to about 20 % in the recent ones (Figure, 1) .

Retrieve data concerning the incidence of each GIT helminthes over the period of study were recorded in table (2) and figure 2, 3, 4, 5, 6, 7, 8, 9 and 10. The percentage frequency of each parasite was calculated in relation to the total number of recorded helminthes (Table 3).

The frequency of each parasite was recorded regardless the nature of infestation either single or mixed .

Trichostrongylus Spp. Nematodirus Spp and Haemonchus Spp used to possessing high records . The highest percentages were about 40% and the minimum ones were about 16% .

The pattern observed for Haemonchus Spp showed that the frequency of recording was increased from 22% at

1994 / 1995 to to 41% in 1998 / 1999 season then the records declined to about 4 % in the recent seasons

A general overall look to the obtained results declared that, Trichostrongylus spp, Nematodirus spp. and Haemonchus Spp were the most frequently recorded parasite with an average percentage of ~ 27%, 22% and ~ 16% respectively. (Fig., 11).

The Strongyloide spp, Trichuris spp., Moniezia spp and Cooperia spp, were used to having lower incidences compared with the above mentioned helminthes.

The parameters recorded for Strongyloide spp. and Trichuris spp. were vary from 1% to 4% according to the season with an overall percentage about 2 - 3% (Fig.,11) .

Regarding cestodes, Moniezia spp. was vary from 4% up to 8% with an average percentage about 5% (Fig., 11)

The pattern of frequency distribution revealed that Cooperia Spp. was the least recorded parasite (Fig., 11).

The data concerning camel coccidiosis reflected an increase in the number of positive samples . The data showed that less than 1000 samples were positive in season 1994 / 1995 whereas, 11,200 samples were positive by season 2002 / 2003. (fig.,12) . The relation between positive cases and the pathogenic influences on the affected animals not reported in the current study .

Discussion

Gastro-intestinal helminthes of Dromedaries had received the attention of many in different countries (Fassi-Fehri , 1986)) . The current data covered all the rural areas of Al Ain region from 1994 up to 2003 . The numbers of assayed samples reflected the degree of attention expressed by the camel's owner to the health of their camel herds especially those involved in camel race competition.

The obtained data yielded that the incidence of infested camels followed a decreased pattern from about 40 % in 1994 / 1997 to about 20% in the 1999 / 2003 despite doubling the numbers of the assayed samples . The high incidence of positive cases at the beginning of the study period agreed with that recorded earlier at the area of study where the incidence of positive cases varied from 41 % up to 67% (El-Khouly et.al.,1989 and El Khawad et al.,1992) and that recorded in Pakistan by Hayat et.al.(1998) .

Regardless the analyzed data included repetition of examined cases at short intervals ; the current incidences of positive cases were much low compared with that recorded in Jordan (98%) by Al-Rawashdeh et.al.(2000) and in Kuwait (93.8%) by Abdul - Salam and Farah, (1988) and in Saudi Arabia (89%) by El - Bihari (1985)

Conclusively; the obtained data reflects the efficacy of the active policy adopted at the area of study for combating camel intestinal helminthes and the awareness of local citizens with dromedary animal health and fitness.

Infestation of Dromedaries with members of Order Strongylida, Family Trichostrongylidae which include Trichostrongylus, Haemonchus, Cooperia and Nematodirus genera as well as Family Strongylidae, genus Strongylus were frequently occurred in 90 - 100 % of camels (Mukani and Kimani, 1999).

The achieved collected data pointed out the list of common helminthes existed At Al Ain region which match with that recorded in other studies with little variation in the incidence proportions. The overall estimated average percentage of Trichostrongylus spp., Nematodirus spp. and Haemonchus spp. were ~ 27%, 22% and ~ 16% respectively. The maximum recorded incidence was ~ 40% and the minimum recorded incidence was ~ 16%. Regarding Haemonchus spp, the rate of detection was markedly high in 1997 up to 1999 (28 - 41 %), then the rate was declined to 4 -9 % recently. This could be understandable on the light of possibility of development of drug resistance as mentioned by Mukani and Kimani (1999) and Partani et.al. (1995). The large number of seasonal assayed samples overcome the problem of possibility of underestimated the incidence rate.

The Strongyloide spp, Cooperia spp, Moniezia spp. and Trichuris spp., were used to recorded at lower rate compared with the above mentioned parasites. The incidence percentage for strongylus spp. and Trichuris spp. were varying from 1% to 4% with an overall

percentage of 2 - 3%. . The similar values recorded for Moniezia spp varied from 4% up to 8% with an overall percentage about 5%. The pattern of frequency distribution revealed that Cooperia spp. was the least recorded parasite with an overall percentage 1.45-%.

Similar proportions for the above mentioned parasites were recorded in Pakistan by Hayat et.al. (1998) and at Al Ain by El-Khawad et.al.(1992) with exception that, the proportions recorded for strongyloide spp. in the current study was much less than that recorded by El-Khawad et al. (1992). The repetition of the recorded figures over the period of study for strongyloide spp. might be a strong evidence for the real incidence of strongyloide spp. in Al Ain.

Regarding camel coccidiosis , the obtained data yielded that the number of positive cases is increasing . This might reflects increase awarness of camel owners to the significance effect of camel coccidiosis (Kinne and Wernery,1997) rather than as a parameter for incidence percentage . This is could be attributed to presence of technical difficulties of assaying oocysit count routinely and the investigation for camel coccidiosis was done on request of the veterinerian only . Verification of the role of camel coccidiosis and its incidence in Al Ain will be followed in other study.

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أهم الطفيليـــات المعدية والمعوية التى تصيب
الجمـــال الموجودة فى منطقـــة العين
بدولة الأمارات العربية المتحدة

مقدم الدراســـة

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الوهاب

ملخص الدراســـة

تبرز هذه الأحصائـية التى تمت بالمختبر البيطرى التابع لدائرة الزراعة والأنتاج الحيوانى بالعين على مدى الفترة من عام ١٩٩٤ إلى ٢٠٠٣ أهم أنواع الطفيليات المعدية والمعوية التى تصيب الجمال المتواجدة فى منطقة العين .

أظـــهرت الدراسة أن الـــديدان الأســـطوانيـة من فصيلـة الـ TRICHOSTRONGYLUS SPP و الـــ NEMATODIRUS SPP. هما الأكـثر انتشـاراً. وتـأتى فى المـرتبة التالية طفيل الـ HAEMONCHUS SPP التى تتغذى على دم الجمال وتصيبها بالأنيميا . وتأتى الديدان الأســطوانيـة من فصيلـة الـ STRONGYLOIDE و الديدان الشريطية من فصيلة MONIZIA SPP بدرجة أقل . فيما يتعلـق بطفيلـيات الديدان الأسطوانية من فصيلة الـ COOPERIA SPP و TRICHURIS SPP فتأتى بدرجة ضعيفة .

أظهرت الدراسة أيضـاً ان الأصابة بطفيل الكوكسيديا يتزايد ولكن تحديد نسبة الأصابة يحتاج إلى مزيد من الدراســة .

Fig (1) : Percentage of positive infested camels in Al Ain region over the period of study

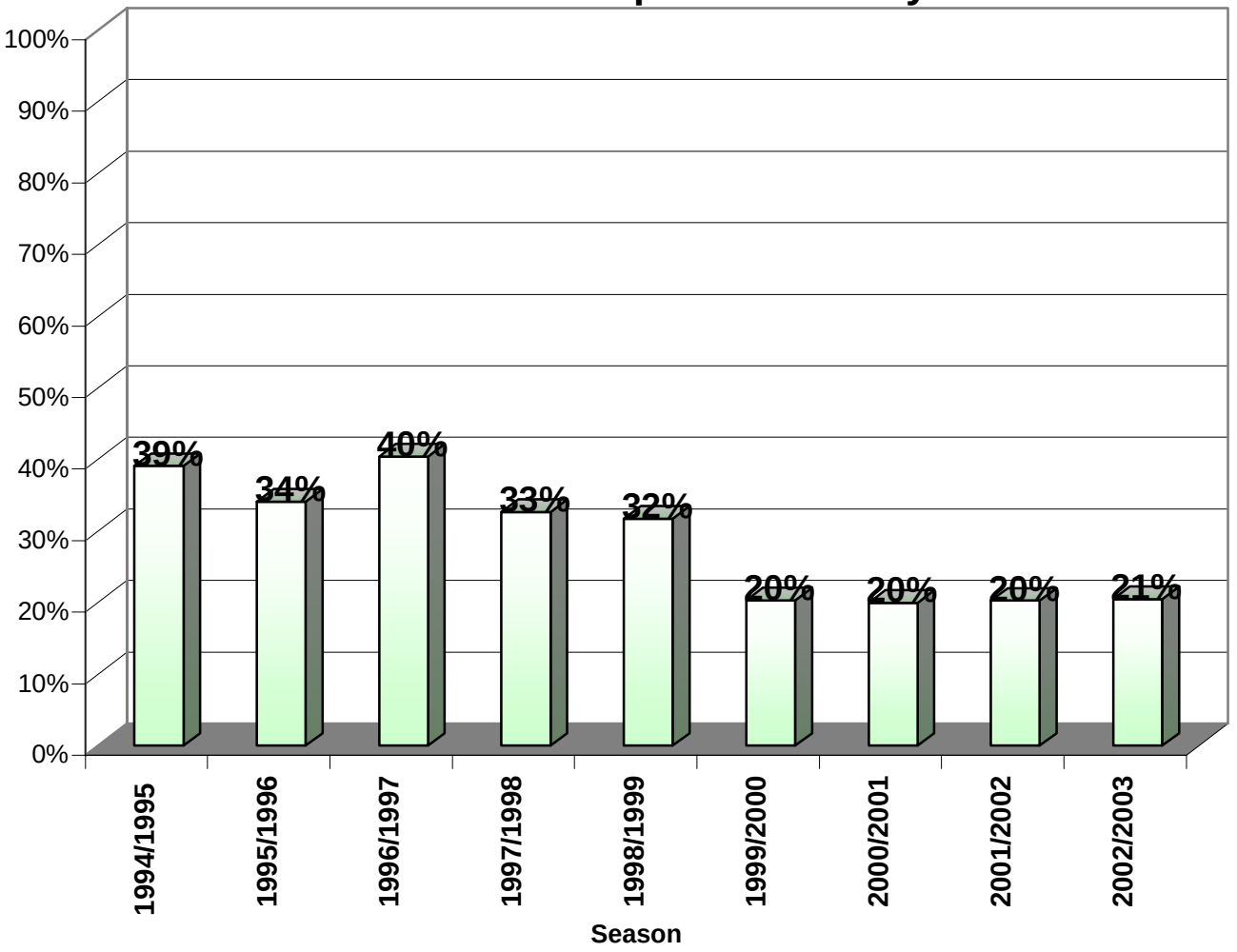

Fig (2) : Frequency of each gastro-intestinal parasite recorded in year 1994/1995

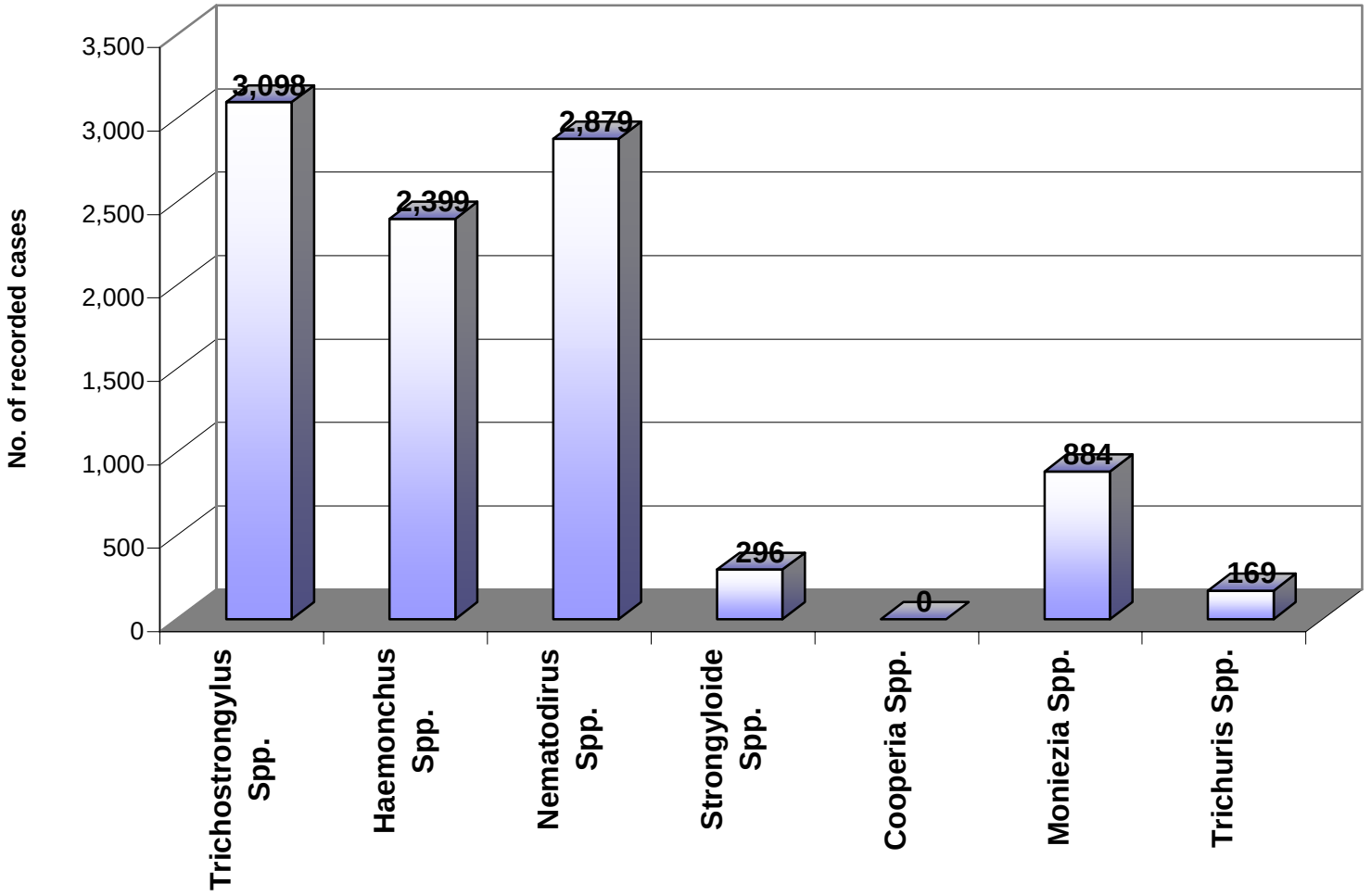

Fig (3) : Frequency of each gastro-intestinal parasite recorded in year 1995/1996

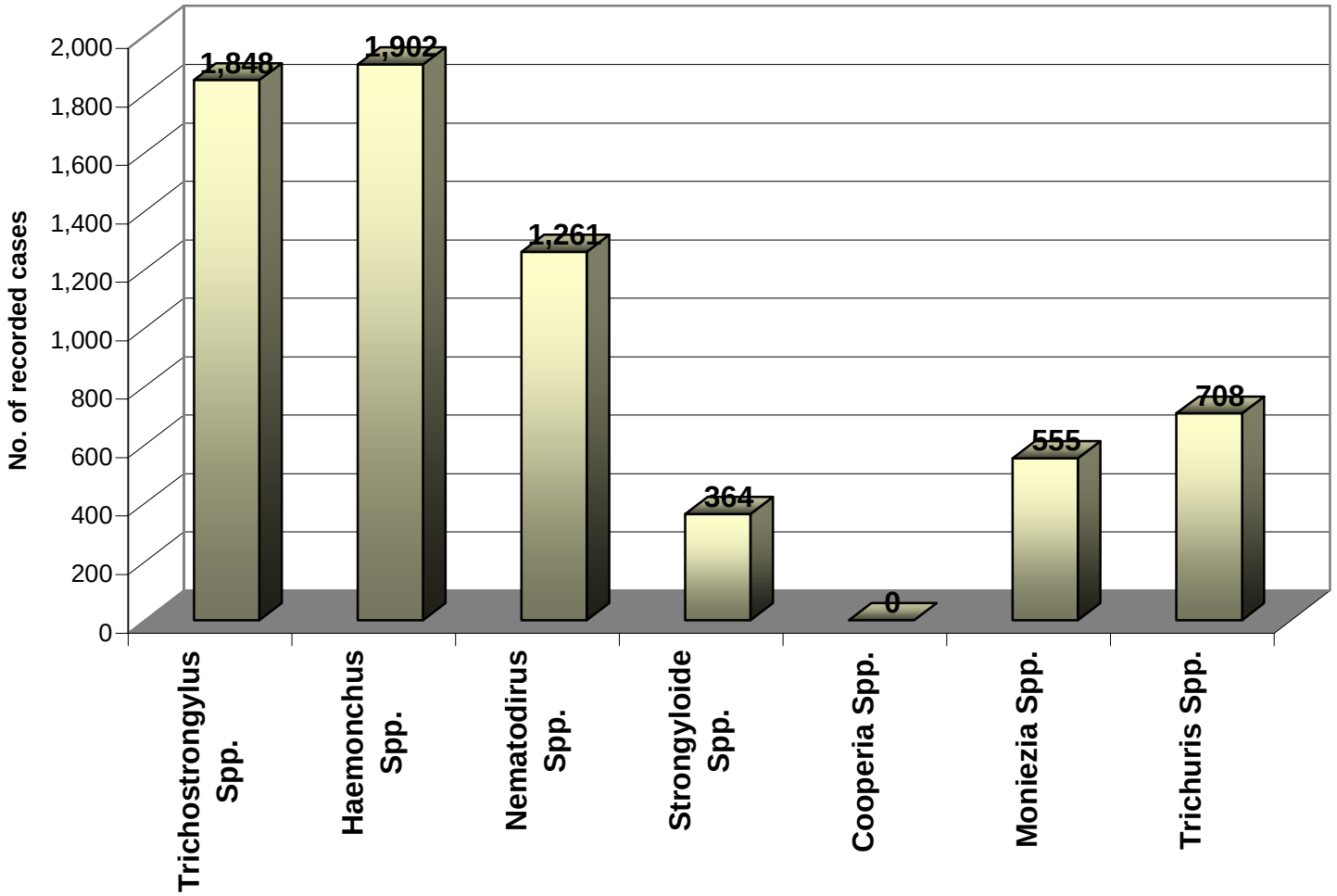

Fig. No (4): Frequency of each gastro-intestinal parasite recorded in year 1996/1997

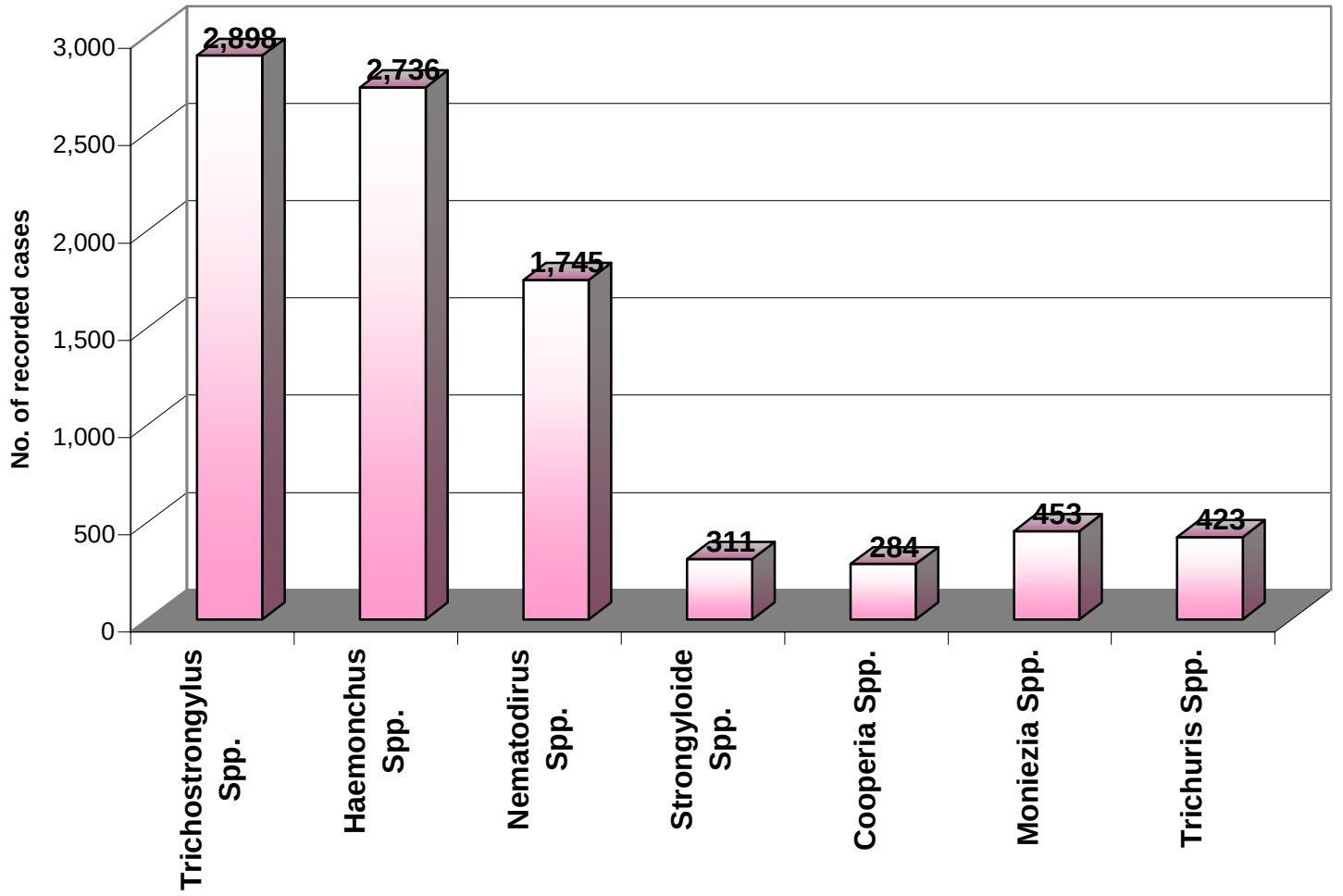

Fig No. (5): Frequency of each gastro-intestinal parasite recorded in year 1997/1998

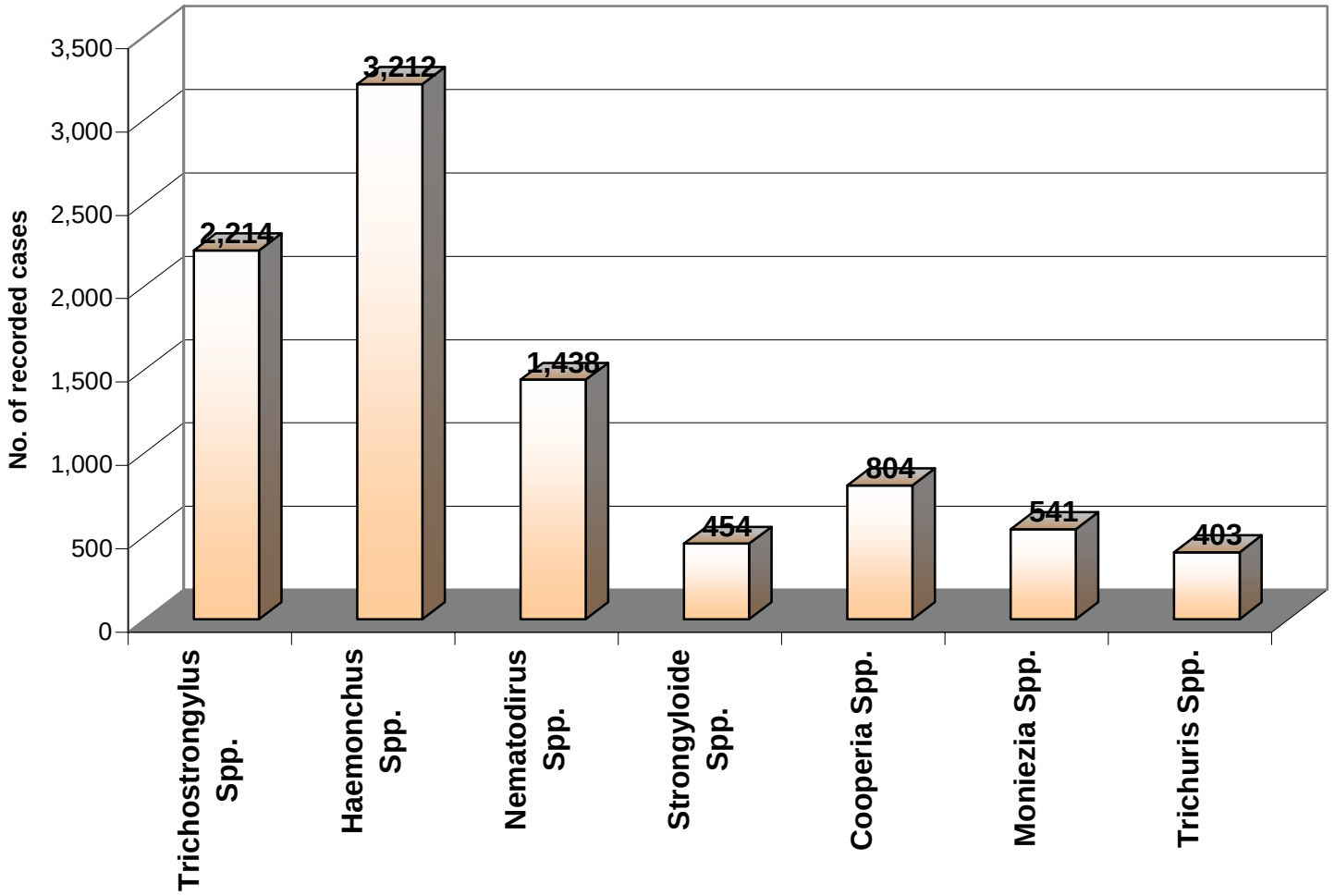

Fig. No. (6) : Frequency of each gastro-intestinal parasite recorded in year 1998/1999

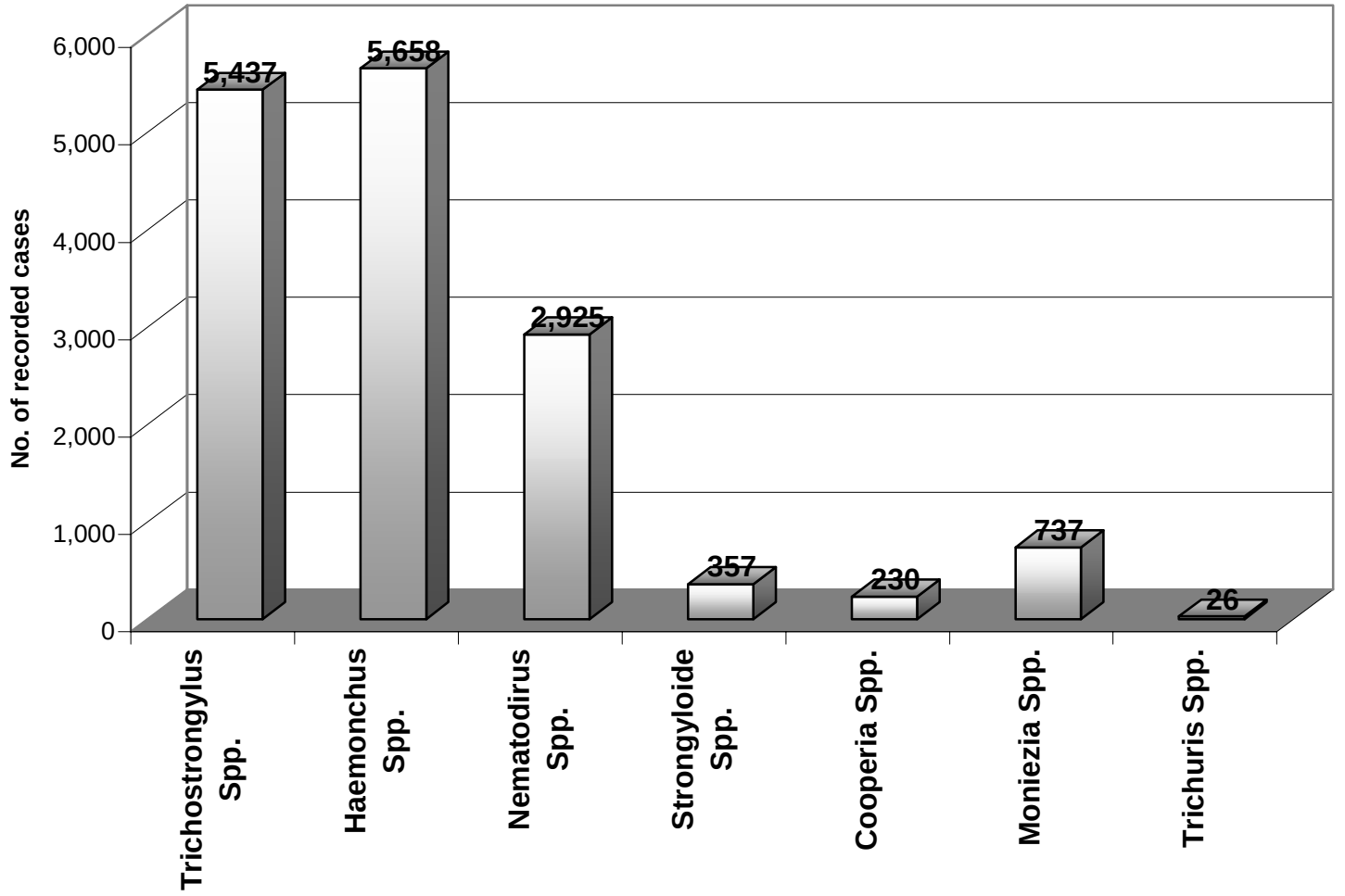

Fig. No. (7) Frequency of each gastro-intestinal parasite recorded in year 1999/2000

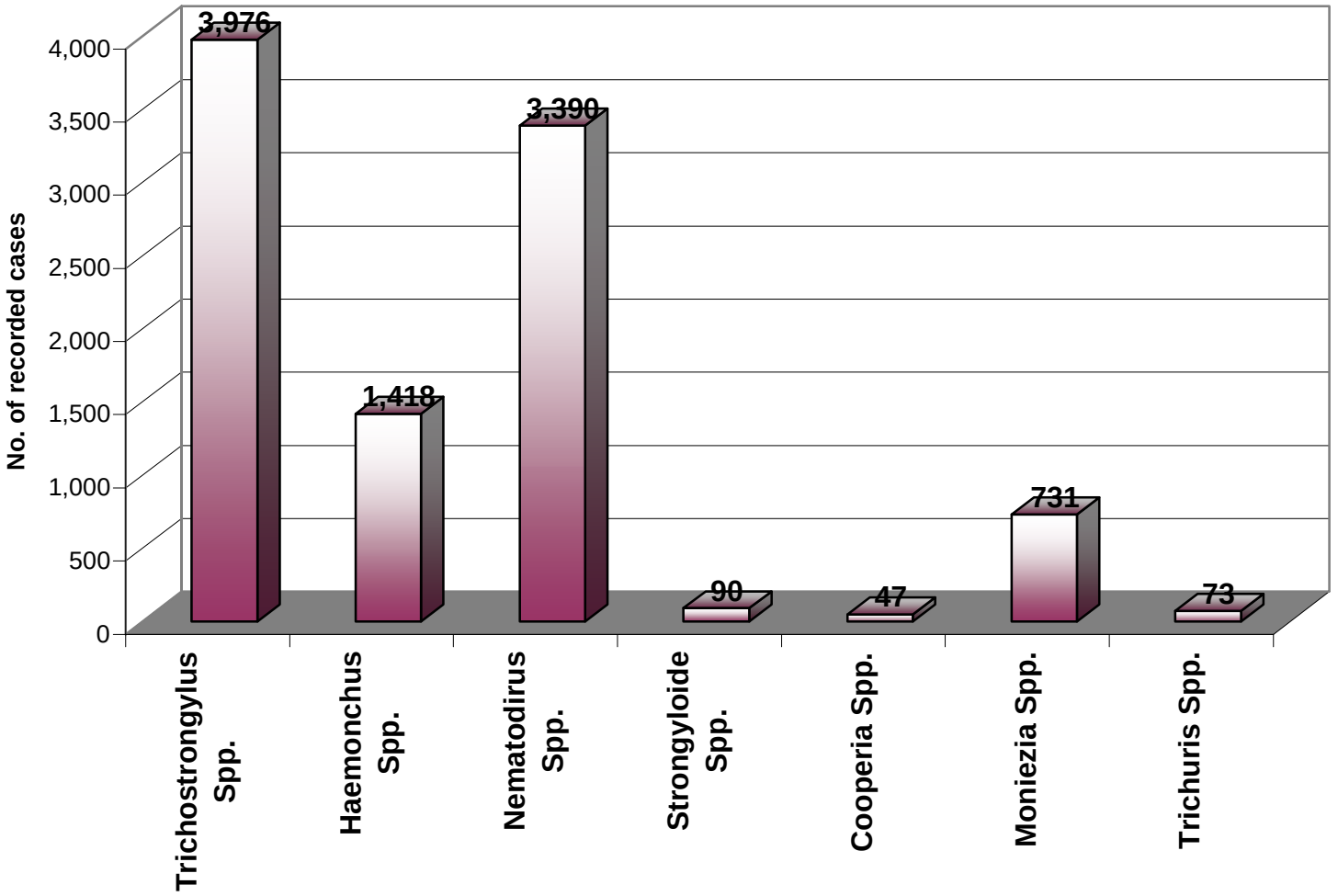

Fig. No. (8) : Frequency of each gastro-intestinal parasite recorded in year 2000/2001

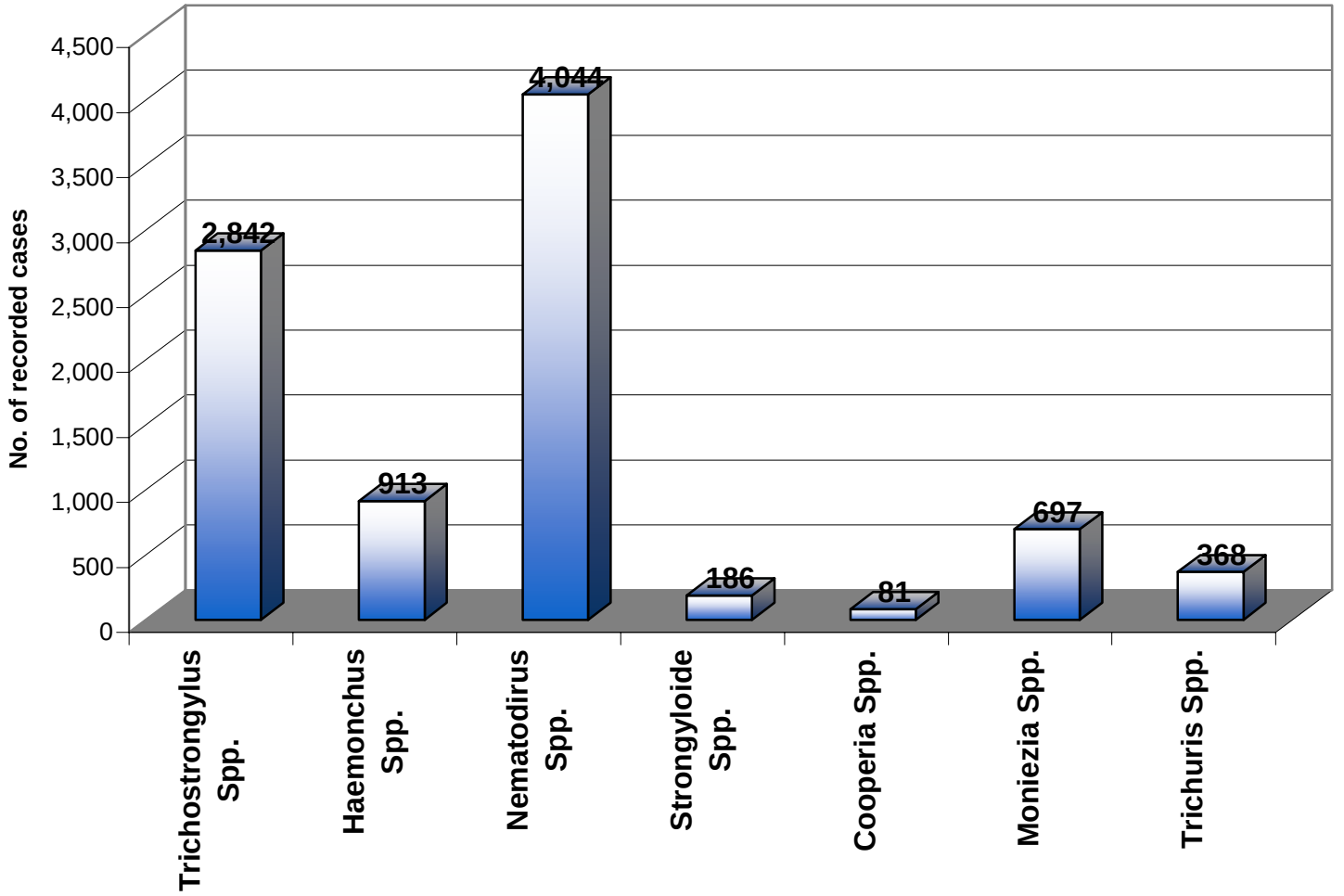

Fig. No. (9): Frequency of each gastro-intestinal parasite recorded in year 2001 / 2002

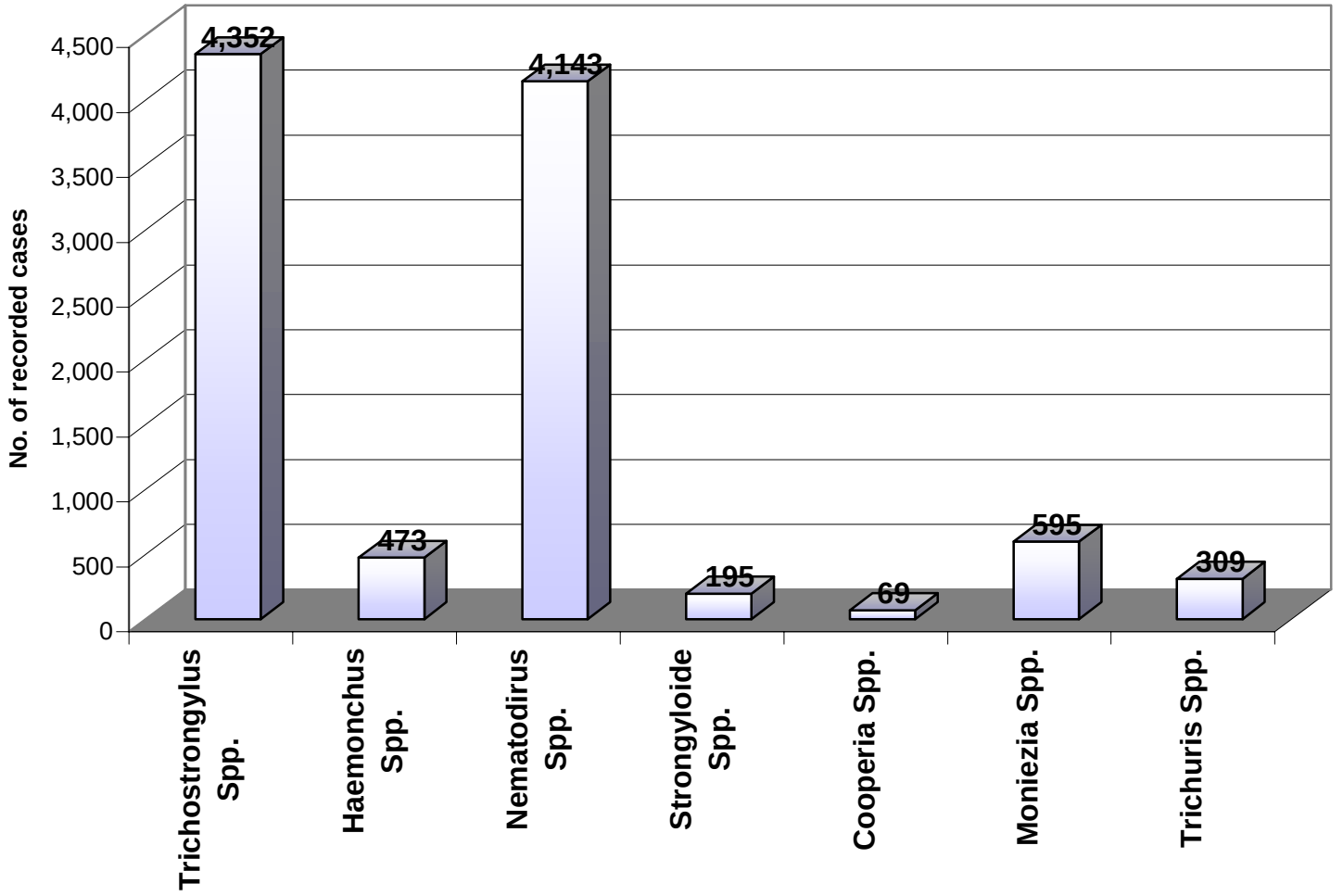

Fig. No. (10) : Frequency of each Dromedary gastro-intestinal parasite recorded in year 2002/2003

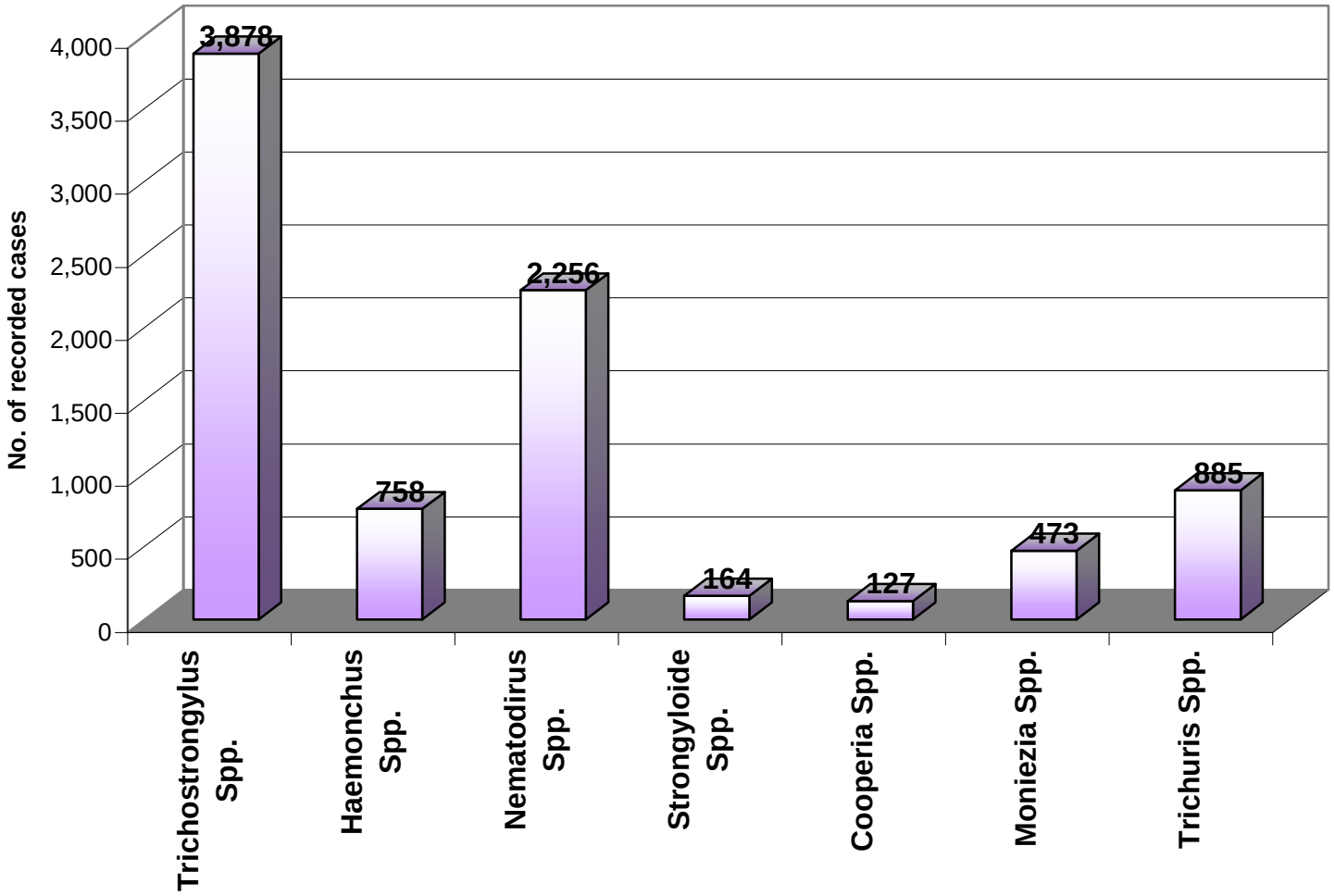

Fig.(11) : Over all prevailence percentage of each parsite in Al Ain Area

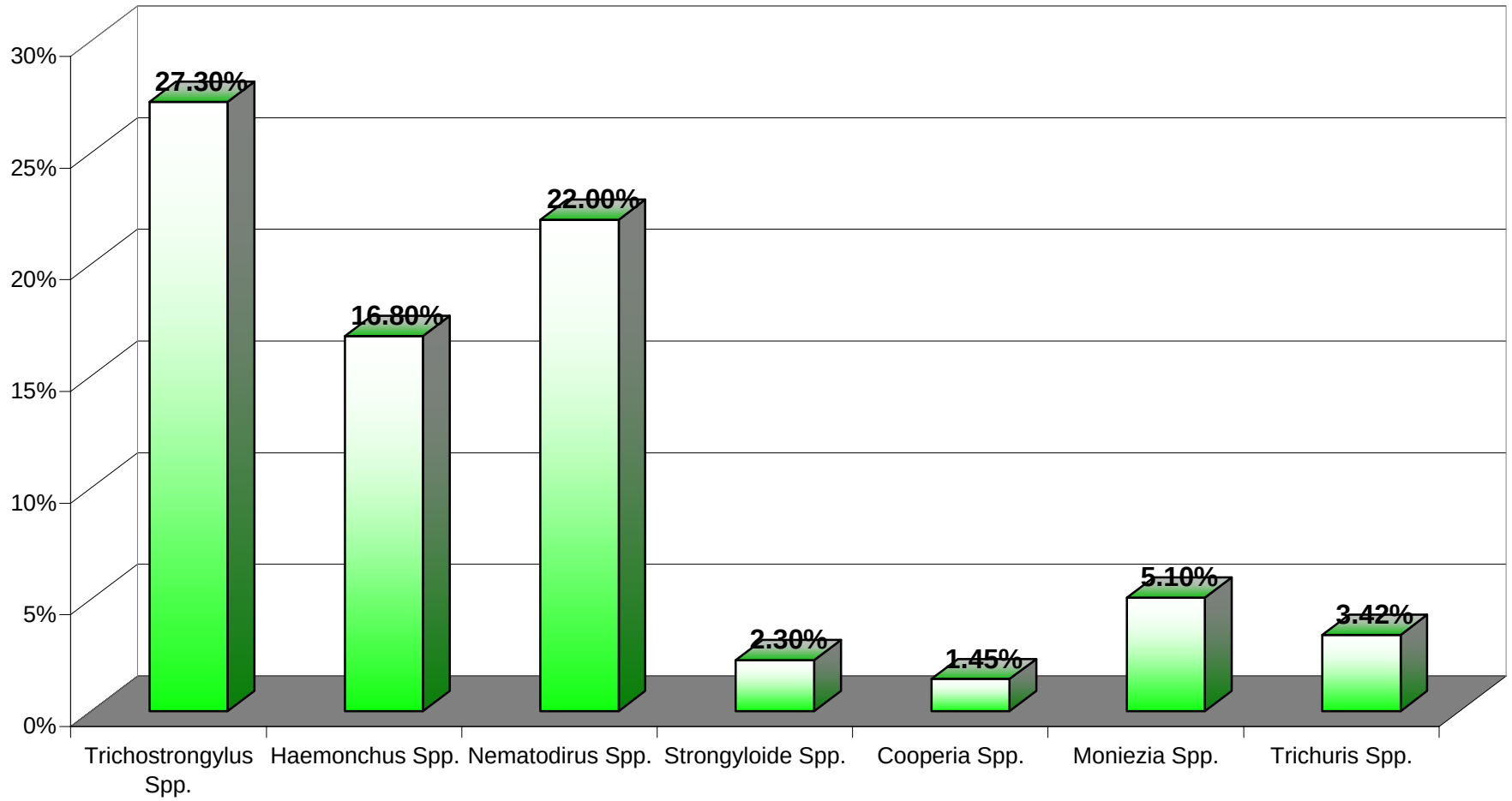

Fig. (12) : Incidence of camel coccidiosis at Al Ain Region