SHORT COMMUNICATION

NEMATODES CYASTHOSTOMINAE PARASITES OF *EQUUS CABALLUS* IN THE STATE OF MINAS GERAIS, BRAZIL.

R.O. CARVALHO[1], A.V.M. SILVA[2], H.A. SANTOS[1] & H.M.A. COSTA[1]

(1) Departamento de Parasitologia – ICB, UFMG. Av . Antônio Carlos, 6627 Pampulha . CEP 31270- 901 Belo Horizonte , MG – Brasil;
(2) Universidade de Alfenas, MG - Brasil.

SUMMARY: Fourteen equines from the state of Minas Gerais were necropised to collect small strongyles. Non–measured samples were collected from the mixed contents of the large intestine , after being previosly homogenized. The samples were preserved using hot formalin / 10 % . The helminths found in each sample were screened and transferred to small bottles with AFA and identified, each specimen being clarified with Aman's Lactophenol and examined under the microscope. Nineteen species were diagnosed, listed according to their respective prevalence and relative abundance: *Cylicocyclus nassatus* (92. 86% and 7.94%), *C. insigne* (50% and 4.37%), *C. brevicapsulatus* (21.43% and 2.84%), *C. radiatus* (42.86% and 4.78%), *C. ultrajectinus* (28.57% and 3.49%) and *C. leptostomus* (100% and 43%), *Cylicodontophorus bicoronatus* (42.86% and 3.98%), *C. euproctus* (50% and 4.22%); *Gyalocephalus* sp. (64.28% and 3.51%); *Cylicostephanus goldi* (100% and 6.77%), *C. calicatus* (100% and 6.33%), *C. minutus* (100% and 6.61%), *C. longibursatus* (100% and 8.02%) and *C. poculatus* (14.28% and 3.79%); *Cyathostomum coronatum* (50% and 5.81%), *C. labiatum* (85.71% and 5.74%), *C. labratum* (28.57 % and 2.70%), *C. catinatum* (100% and 7.11%) and *C. pateratum* (85.71 % and 5.56%).

KEY WORDS: *Cyathostominae*, *Cyathostomum*, *Cylicodontophorus*, *Cylicocyclus*, *Cylicostephanus*, *Gyalocephalus*, *Equus caballus*, Equine.

About 25 species of Cyathostominae in equines of Brazil have already been reported, mainly in the states of Rio Grande do Sul, Paraná, São Paulo and Rio de Janeiro (COSTA *et alii*, 1986; LANFREDI & HONER, 1984). Recently, BARBOSA (1995), investigating small strongyles in equines from Jabuticabal, São Paulo, has identified 22 species. In Minas Gerais, however, only *Gyalocephalus capitatus* and *Poteriostomum ratzzi* (CARVALHO, 1940) are reported.

The idea of doing a research on Cyasthostominae in equines is due to the fact that there is little information about this subject. In Brazil, OLIVEIRA *et alii* (1940) and SILVA *et alii* (1995) carried out studies about Cyathostominae in asinines and mules.

Fourteen equines from Minas Gerais were necropsied to investigate small strongyles. Unmeasured samples were collected from mixed contents of the large intestine, after being previously homogenized. Immediately after being collected, the samples were preserved using hot formalin / 10 % , and stored. The samples were then transported to the lab , where nematodes were screened and stored in small bottles with AFA, with identification labels. Before being examined under the microscope, the nematodes were clarified with Aman's Lactophenol. 18.958 specimens were examined. Each species was analysed so as to determine prevalence, relative abundance and male/female ratio. To calculate the relative abundance in nematodes, logarithms of the percentage plus one (log.x+1) were used.

Nineteen species of Cyathostominae were identified according POPOVA (1965), LICHTENFELS (1975) and LANFREDI & HONER (1984): six species of *Cylicocyclus*, two of *Cylicodontophorus*, five of *Cylicostephanus*, five of *Cyathostomum* and *Gyalocephalus* sp.

The prevalence of the five genera identified are shown

in Table 1. Tables 2, 3, 4 and 5 present, respectively, prevalences, relative abundances in the genera, and Male / Female ratios of *Cyathostomum*, *Cylicocyclus*, *Cylicostephanus* and *Cylicodontophorus* and *Gyalocephalus*. A general consideration of the relative abundances of all Cyathostominae species, previously identified, is shown in the Table 6. Table 7 shows infections composition.

Table 1 - Cyathostominae parasites of equines from the State of Minas Gerais (Brazil): Prevalence and Relative Abundance of the genera.

GENERA	PREVALENCE (%)	RELATIVE ABUNDANCE (%)
Cylicostephanus	100.00	26.14
Cyathostomum	100.00	23.35
Cylicocyclus	100.00	25.11
Cylicodontophorus	64.29	14.60
Gyalocephalus	64.29	10.79

Table 2 - Cyathostominae parasites of equines from the State of Minas Gerais (Brazil): Prevalences, Relative Abundances and Male / Female Ratios of the species of *Cyathostomum*.

SPECIES	PREVALENCE (%)	RELATIVE ABUNDANCE (%)	MALE / FEMALE RATIOS
C. catinatum	100.00	26.40	1: 1.55
C. labiatum	85.71	21.59	1: 1.63
C. pateratum	85.71	21.33	1: 2.60
C. coronatum	50.00	20.67	1: 1.31
C. labratum	28.57	10.01	1: 1.43

Table 3 - Cyathostominae parasites of equines from the State of Minas Gerais (Brazil): Prevalence, Relative Abundance and Male / Female Ratios of the species of *Cylicocyclus*.

SPECIES	PREVALENCE (%)	RELATIVE ABUNDANCE (%)	MALE / FEMALE RATIOS
C. leptostomus	100.00	26.61	1: 1.41
C. nassatus	92.86	21.54	1: 1.07
C. insigne	50.00	16.03	1: 2.57
C. radiatus	42.86	14.63	1: 2.05
C. ultrajectinus	28.57	11.68	1: 4.86
C. brevicapsulatus	21.43	9.51	1: 2.33

Table 4 - Cyathostominae parasites of equines from the State of Minas Gerais (Brazil): Prevalence, Relative abundance and Male / Female Ratios of the species of *Cylicostephanus*.

SPECIES	PREVALENCE (%)	RELATIVE ABUNDANCE (%)	MALE / FEMALE RATIOS
C. goldi	100.00	21.48	1: 1.48
C. calicatus	100.00	20.08	1: 1.81
C. minutus	100.00	20.98	1: 1.71
C. longibursatus	100.00	25.45	1: 1.76
C.poculatus	14.28	12.01	1: 0.50

Table 5 - Cyathostominae parasites of equines from the State of Minas Gerais (Brazil): Prevalence, Relative Abundance and Male/ Female Ratios of the specis of *Cylicodontophorus* and *Gyalocephalus*.

SPECIES	PREVALENCE (%)	RELATIVE ABUNDANCE (%)	MALE / FEMALE RATIOS
C. euproctus	50.00	48.53	1: 1.53
C. bicoronatus	42.86	51.47	1: 2.50
Gyalocephalus sp.	64.28	-	1: 1.62

Table 6 - Cyathostominae parasites of equines from the State of Minas Gerais (Brazil): Relative Abundance of the species (Summary Table).

SPECIES	RELATIVE ABUNDANCE (%)
Cylicostephanus longibursatus	8.02
Cylicocyclus nassatus	7.94
Cyathostomum catinatum	7.11
Cylicostephanus goldi	6.77
C.minutus	6.61
Cylicocyclus leptostomus	6.43
Cylicostephanus calicatus	6.33
Cyathostomum labiatum	5.74
C. pateratum	5.56
C. coronatum	5.51
Cylicocyclus radiatus	4.78
C. insigne	4.37
Cylicodontophorus euproctus	4.22
C. bicoronatus	3.98
Cylicostephanus poculatus	3.7
Gyalocephalus sp.	3.51
Cylicocyclus ultrajectinus	3.49
C.brevicapsulatus	2.84
Cyathostomum labratum	2.70

Table 7- Cyathostominae parasites of equines from the State of Minas Gerais (Brazil): Participation of the species in the infections.

SPECIES	NUMBER OF SPECIES												
	9	10	10	11	12	12	12	13	13	14	14	14	16	16
Cylicostephanus goldi	+	+	+	+	+	+	+	+	+	+	+	+	+	+
C. longibursatus	+	+	+	+	+	+	+	+	+	+	+	+	+	+
C. calicatus	+	+	+	+	+	+	+	+	+	+	+	+	+	+
C. minutus	+	+	+	+	+	+	+	+	+	+	+	+	+	+
C. poculatus										+		+		
Cylicocyclus radiatus							+	+		+		+	+	+
C. nassatus	+		+	+	+	+	+	+	+	+	+	+	+	+
C. ultrajectinus					+					+	+			+
C. insigne						+			+	+	+	+	+	+
C. leptostomus	+	+	+	+	+	+	+	+	+	+	+	+	+	+
C. brevicapsulatus						+							+	+
Cyathostomum coronatum				+	+	+				+	+		+	+
C. labiatum	+	+	+		+		+	+	+	+	+	+	+	+
C. catinatum	+	+	+	+	+	+	+	+	+	+	+	+	+	+
C. labratum			+						+			+	+	
C. pateratum	+	+	+	+		+	+	+		+	+	+	+	+
Cylicodontophorus euproctus		+		+			+	+	+		+			+
C. bicoronatus					+			+	+		+		+	+
Gyalocephalus sp.		+		+	+	+	+	+			+	+		+

Nineteen species were identified and 18 of them were reported for the first time in Minas Gerais, although already known in Brazil. All equines were parasitized by small strongyles. The number of species per animal submitted to necropsy varied from 9 to 16 (1x9, 2x10, 1x11, 3x12, 2x13, 3x14 and 2x16). *Cylicontephanus goldi*, *C. longibursatus*, *C. calicatus*, *C. minutus*,*Cylicocyclus leptostomus* and *Cyathostomum catinatum* were the most common, being present in all equines. In contrast, the least common were *Cylicostephanus poculatus* and *Cylicocyclus brevicapsulatus*, which were found in two and three necropsies, respectively.

BARBOSA (1995) found only *Cylicostephanus longibursatus* and *C. goldi* in 100% of equines followed by *Gyalocephalus* (71,43%). OGBOURNE (1976) found as the most prevalent: *Cylicostephanus longibursatus* (100%), followed by *Cyathostomum catinatum*, *Cylicostephanus goldi* and *Cylicocyclus nassatus*. For REYNEMEYER *et alii* (1984), the most prevalet were: *Cyathostomum catinatum*, *Cylicocyclus nassatus*, *Cylicostephanus londgibursatus*, *Cyathostomum coronatum* and *Cylicostephanus goldi*. MFITILODZE & HUTCHINSON (1990), found as the most prevalent: *Cyathostomum catinatum* (76%), *C. calicatus* (70%), *Cylicostephanus longibursatus* and *Cylicocyclus nassatus* (67 %). And to LOVE & DUNCAN (1992), studying ponies in Glasgow found the most prevalent species were: *Cyathostomum catinatum* (92.59%), *Cylicostephanus longibursatus* (77.78%), *Cylicocyclus nassatus* and *Cyathostomum coronatum* (66.67 %).

Cylicostephanus, *Cylicocyclus* and *Cyathostomum* were the most prevalent genera (100 %) and they presenting the highest participation in infection (relative abundance), 26.14 , 25.11 , and 23.35 % respectively. The species with the highest participation were : *Cylicostephanus longibursatus* (8.02%), *Cylicocyclus nassatus* (7.94%) and *Cyathostomum catinatum* (7.11%); the first and the third showed the highest prevalence (100%), while the second presented lower prevalence (92.86%). For OGBOURNE (1976), the most abundant species were: *Cylicostephanus longibursatus*, *Cyathostomum catinatum*, *Cylicocyclus nassatus* and *Cylicostephanus minutus*. For REINEMEYER *et alii* (1984) the most abundant species were: *Cylicocyclus nassatus*, *Cylicostephanus longibursatus*, *Cylicocyclus leptostomus*, *Cyathostomum catinatum* and *Cylicostephanus goldi*. For MFITILODZE & HUTCHINSON (1990) the most abundant species were: *Cylicocyclus nassatus*, *Cylicostephanus longibursatus* and *Cyathostomum catinatum*.

Comparing these data with those obtained by SILVA *et alii* (1995), for mules, it can be seen that in those hosts the most abundant species are: *Cylicostephanus minutus* (27.7%), *Cylicocyclus nassatus* (18.3%) and *Cyathostomum catinatum* (17.3%). In these it is interesting to see that in equines, the relative abundance presents a uniform distribution, whereas in mules the relative abundance shows a non-uniform distribution, presenting a high number for the first four species and, relatively, very low for the other species.

The analysis of Male / Female ratios shows that females, generally, participate in infections more than the males do. The same occurs with Cyathostominae from asinines and mules (OLIVEIRA *et alii*, 1994 and SILVA *et alii*, 1995).

SUMÁRIO

Quatorze equinos provenientes do estado de Minas Gerais foram necropsiados para a coleta de pequenos estrôngilos. Alíquotas variáveis foram tomadas dos conteúdos do intestino grosso após homogeinização. As amostras foram preservadas com formol quente a 10 %. Os helmintos encontrados em cada amostra foram separados e transferidos para pequenas garrafas contendo AFA e identificados, sendo que cada espécime foi clarificado com lactofenol de Aman e examinado ao microscópio. Dezenove espécies foram diagnosticadas, e listadas de acordo com suas respectivas prevalencias e relativa abundância: *Cylicocyclus nassatus* (92, 86% e 7,94%), *C. insigne* (50% e 4,37%), *C. brevicapsulatus* (21,43% e 2,84%), *C. radiatus* (42,86% e 4,78%), *C. ultrajectinus* (28,57% e 3,49%) e *C. leptostomus* (100% e 43%), *Cylicodontophorus bicoronatus* (42,86% e 3,98%), *C. euproctus* (50% e 4,22%); *Gyalocephalus* sp. (64,28% e 3,51%); *Cylicostephanus goldi* (100% and 6,77%), *C. calicatus* (100% and 6,33%), *C. minutus* (100% e 6,61%), *C. longibursatus* (100% e 8,02%) e *C. poculatus* (14,28% e 3,79%); *Cyathostomum coronatum* (50% e 5,81%), *C. labiatum* (85,71% e 5,74%), *C. labratum* (28,57 % e 2,70%), *C. catinatum* (100% and 7,11%) e *C. pateratum* (85,71 % e 5,56%).

PALAVRAS-CHAVE: *Cyathostominae*, *Cyathostomum*, *Cylicodontophorus*, *Cylicocyclus*, *Cylicostephanus*, *Gyalocephalus*, *Equus caballus*, Equinos.

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