

PARASITOLOGICAL FAUNA ON FARM ANIMALS FROM CAPE VERDE ISLANDS AND GUINEA-BISSAU (WEST AFRICA).

M. V. CRESPO¹ and F. ROSA²

¹ Escola Superior Agrária do Instituto Politécnico de Santarém, Apartado 310-2004 Santarém Codex, Portugal. ² Centro de Zoologia do Instituto de Investigação Científica Tropical, R. do Alameda, 139-1349-007 Lisbon, Portugal.

INTRODUCTION

The evolution of parasitic diseases in Cape Verde Islands and Guinea-Bissau, which were used as "arrival and departure points" during the Portuguese discoveries (Albuquerque, 1991), is one of the most challenging questions and it is probably connected not only to animal introduction but to animal ancestral as well.

Based on the available data since 1926 and some personal observations obtained between 1990 and 1999, the main objective of the present paper is to compare the parasitological fauna of a continental (Guinea-Bissau) and an insular area (Cape Verde Islands) in a geographical proximity (occidental coast of Africa), in order to establish the causes of their differences or their similarities.

RESULTS

Parasitological fauna were included at PLATYHELMINTHES (TREMATODA AND CESTODA), NEMATODA, PROTOZOA, ARTHROPODA (INSECTA, ARACHNIDA) and PENTASTOMIDA Phyla and its diversity was higher in NEMATODA and in cattle for both countries (Tables I and II).

In both geographical areas, the results evidenced the overall presence of 67 parasites in farm animals, from which 20 (29,85%) were common. Parasitological diversity was higher in NEMATODA Phylum with 28 (41,79%), from which 18 (26,87%) were found in Guinea-Bissau and 20 (29,85%) in Cape Verde Islands. Excepting *Linguatula serrata* (larvae), all the known different parasites groups were more diverse in Guinea-Bissau. This seemed to be more evident in PROTOZOA (1 to 10 species) and ARACHNIDA (ARTHROPODA) (4 to 13 species), meaning more 9 species in each group in Guinea-Bissau than in Cape Verde Islands.

Table I - List of PLATYHELMINTHES, NEMATODA and PENTASTOMIDA recorded from farm animals from Cape Verde Islands and Guinea-Bissau.

	CATTLE		GOAT		SWINE		DONKEY/HORSE	
	CV	GB	CV	GB	CV	GB	CV	GB
TREMATODA								
<i>Dicrocoelium hospes</i>		abc						
<i>Fasciola hepatica</i>		d						
<i>Fasciola gigantica</i>	efgh	acd	h		h		h ²	
<i>Paraphistomum explanatum</i>		ad						
<i>Cotylophoron cotylophorum</i>		ad						
<i>Schistosoma bovis</i>	ijk	clmn	k				k ²	
CESTODA								
<i>Avitellina centripunctata</i> ¹		d						
<i>Moniezia expansa</i>	o		o	d				
<i>M. benedeni</i>	i	d						
<i>Cysticercus bovis</i>	i	dp						
<i>C. cellulosa</i>							dp	
<i>C. tenuicollis</i> ¹			i					
<i>Echinococcus polymorphus</i>		io	io	d				
NEMATODA								
<i>Ascaris suum</i>					i	d		
ASCARIDIDAE								
<i>Oxyuris equi</i>							d	
<i>Skirjabinema ovis</i>		i						
<i>Strongylus</i> spp.	q	a						
<i>Strongylus vulgaris</i>							r ²	
<i>Triodontophorus</i> spp.							r ²	
<i>Cyathostomum</i> sp.							r ²	
<i>Patenostomum</i> sp.							r ²	
<i>Oesophagostomum dentatum</i>					i	d		
<i>O. radiatum</i>	q		i					
<i>O. columbianum</i>						d		
<i>Stephanurus dentatus</i>							d	
<i>Necator suillus</i>							i	
<i>Bunostomum phlebotomum</i>	i	s						
<i>Trichostrongylus axei</i>	i	s					r ²	
<i>T. colubriformis</i>	t	t						
<i>Ostertagia ostertagi</i>	o	t						
<i>Cooperia punctata</i>	i	s						
<i>C. pectinata</i>	q	d	iq	d				
<i>Haemonchus contortus</i>	q	d	iq	d				
<i>H. placei</i>	iq	s	q					
<i>Rhipicephalus eilangatus</i>						d		
PROTOSTRONGYLIDAE								
<i>Thelazia rhodesii</i>	o	as						
<i>Setaria labiostipitata</i> ¹	ad							
<i>Trichuris ovis</i> ¹						d		
<i>T. globulosa</i>			i					
<i>Trichuris</i> sp.	as							
<i>Micr. sanguinis equi</i>							dv	
PENTASTOMIDA								
<i>Linguatula serrata</i>	k	m	w					

¹ Also on wild small ruminants from Guiné-Bissau (Tendeiro, 1948); ² Only on donkey.

The parasitological diversity observed was higher in Guinea Bissau, with 56 species (83,58%), than in Cape Verde Islands, with 31 (46,27%).

Table II - List of PROTOZOA and ARTHROPODA recorded from farm animals from Cape Verde Islands and Guinea-Bissau.

	CATTLE		SHEEP/GOAT		SWINE		DONKEY/HORSE	
	CV	GB	CV	GB	CV	GB	CV	GB
PROTOZOA								
<i>Trypanosoma vivax</i>		ab			ab			b ²
<i>T. congolense</i> ¹		bc			ab ²			bc ²
<i>T. brucei</i> ¹		ac					b	ab
<i>T. theileri</i>		bd						
<i>Sarcocystis</i> sp.	e	fg						
<i>Babesia bigemina</i>		bg						
<i>B. traubmanii</i>							h	
<i>Theileria mutans</i>		bg						
<i>T. ovis</i>		b						
<i>T. velifera</i>		b						
INSECTA								
CULICIDAE ² ijklm								
<i>Glossina</i> spp. ² abcnoq								
ARACHNIDA								
<i>Boophilus annulatus</i>		cgrst						
<i>B. geigy</i>		bgst					b ³	
<i>Boophilus</i> sp.	u	r						b ²
<i>Aponomma flavomaculatus</i>		r						
<i>Hyalomma truncatum</i>	u	gst						
<i>H. impressum</i>	v							
<i>Rhipicephalus sanguineus</i> ¹		br			br			br ²
<i>R. simus</i>		brt			r			
<i>R. lunulatus</i>		t					h	
<i>R. senegalensis</i>		t						
<i>R. sulcatus</i> ¹		w						
<i>R. muhombae</i>		w						
<i>Amblyomma variegatum</i>	xyz	bg ² rst			br			br
<i>A. splendendum</i> ²		br						
<i>A. pallipunctum</i> ²		br					br	

¹ Also on wild small ruminants from Guiné-Bissau (Tendeiro, 1948); ² Only on horse; ³ Only on goat; ⁴ *Anopheles*, *Aedes* and *Culex*, as filarial intermediate hosts; ⁵ *Glossina palpalis*; ⁶ *moritansi*; ⁷ *lingulipis*; ⁸ *fasciata*; ⁹ *Synsiterus cfferi*; ¹⁰ *Phlebotomus arthropis* and *Paratuberculosis parvus*.

a - Fontoura de Sequeira (1935); b - Tendeiro (1948); c - Monteiro da Costa (1926); d - Tendeiro (1947b); e - Rosa (2002); f - Crespo & Rosa (1993, in press); g - Rosa et al. (1998); h - Tendeiro (1992a); i - Pinto & Almeida (1947); j - Ferreira et al. (1948); k - Ribeiro et al. (1980); l - Petronaco et al. (1983); m - Capela et al. (1997); n - Barreto (1929); o - Cruz Ferreira (1946); p - Cruz Ferreira (1947); q - Tendeiro (1949b); r - Tendeiro (1952b); s - Brancaert (1988); t - Neves (1996); u - Rosa (2003, personal observations); v - Travassos Dias (1993); w - Terenius et al. (2000); x - Tendeiro (1954); y - Meira et al. (1947); z - Meira et al. (1950).



STUDIED AREAS

Cape Verde Islands are located in the Atlantic Ocean at 14° 48' W and 18° 00' N, about 500 Km away from the nearest part of the African continent. It is composed by ten inhabited islands, located at the Sahelian zone, with great rainfall variability, which are often affected by periodic droughts. The morphology of the islands is diverse, since some of them raise below 100 meters high, like Maio, Boavista and Santiago, S. Nicolau and São Antão.

Guinea-Bissau is located in the west coast of Africa bounded by Senegal to the north and Guinea to the south and east at 10° 55' - 12° 40' N and 13° 38' - 16° 43' W. The total of offshore islands includes Bijagos Archipelago, which are almost connected to the continent by wide intertidal mud flats. The topography of the country is low-lying, rising eastwards from sea level to low altitudes (highest point at 250 m).

There is a predominance of the cosmopolitan species in both countries, followed by the Afrotropical species (Table III). However in Guinea-Bissau, the rate Afrotropical/cosmopolitan species is clearly higher (one to 0,62) than in Cape Verde Islands (one to 0,21).

Table III - Species origin at Cape Verde Islands and Guinea-Bissau.

	Origin	Cape Verde	%	Guinea Bissau	%	Commons
Afrotropical	5	7,46	21	31,3	3	
Pantropical	2	2,99	1	1,49	-	
Cosmopolite	24	35,8	34	50,8	17	
TOTAL	31	46,3	56	83,6	20	

The dominance of the cosmopolitan origin of the parasitic species in Guinea-Bissau is probably the result of the migration from Africa to Asia and Europe of the domestic animals ancestral, especially in cattle, whose introduction in Cape Verde Islands from Europe occurred recently, since the last five centuries.

Guinea-Bissau seems to have higher parasitological fauna diversity as well as Afrotropical elements. The differences found out between Cape Verde Islands and Guinea-Bissau are mainly associated with the distinct geographical origin, geomorphological and climatic characteristics, as well as with the flora and fauna.

Acknowledgements

Special thanks to Doctor Maria Emilia Madeira Santos (IICT) and to Eng. Sérgio Coelho (ESA/IPS).