

PARASITOLOGICAL DIVERSITY IN NON-HUMAN PRIMATES AT THE NATURAL PARK OF THE LAGOONS OF CUFADA (GUINEA-BISSAU, WEST AFRICA)

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RESULTS

All the primates observed had gastro-intestinal helminths (TREMATODA, CESTODA and NEMATODA), PENTASTOMIDA and INSECTA larvae. The overall parasites identified are listed on Table I, stressing NEMATODA as the most relevant group, with 12 species out of 17. There was a great heterogeneity between the different groups identified in each primate, NEMATODA was found in all of them, TREMATODA was identified in *Cercopithecus mona campbelli* and *Papio cynocephalus papio*, CESTODA in *Cercopithecus mona campbelli* and *Chlorocebus aethiops sabaeus*, INSECTA larvae in *Cercopithecus mona campbelli* and *Procolobus badius temminckii* and PENTASTOMIDA only in *Cercopithecus mona campbelli* (Fig. 1).

The prevalence of the parasitic groups identified pointed out once again for the superiority of NEMATODA in all the primates, varying between 23,53% (*Procolobus badius temminckii*) and 47,06% (*Papio cynocephalus papio*), and that the other groups considered represented only a slight percentage each (5,88%) (Fig. 1).

The analysis of Table II marks out that some species, like *Ternidens deminuta* and *Strongyloides fuelleborni* were common in all primates, while others, as *Trichuris trichiura*, *Oesophagostomum bifurcum* and *Pithecostrongylus* sp. were only absent in *Procolobus badius temminckii*. On the other hand, some species were only found in a specific primate, like *Dicrocoelium hospes* and *Armillifer armillatus* in *Cercopithecus mona campbelli*; *Watsonius watsoni*, *Subulura distans* and *Enterobius* sp. in *Papio cynocephalus papio*; *Oesophagostomum* sp. in *Chlorocebus aethiops sabaeus* and *Oesophagostomum stephanostomum* and *Hyostrongylus rubidus* in *Procolobus badius temminckii*. The greatest parasitological diversity was evidenced in *Cercopithecus mona campbelli*, with 11 different species (64,71%) from all the different groups identified, and the lowest was observed in *Procolobus badius temminckii* with only 5 species (29,41%) (Table II).

Excluding *Cercopithecus mona campbelli*, who showed the six species in both small and large intestines, the majority of identified species were found in the large intestine, with an overall of 11 (64,71%) (Table II).

Table II – Gastrointestinal localization and parasitological burden (PB) of parasites identified in non-human primates.

	Stomach	PB	Small intestine	PB	Large intestine	PB	Liver	PB	Total PB
A			<i>Bertiella studeri</i> <i>Strongyloides fuelleborni</i> <i>Ternidens deminuta</i> <i>Globocephalus longemucronatus</i> <i>Pithecostrongylus</i> sp. <i>Armillifer armillatus</i>	4 3 F 1 F; 2 M 3 F; 3 M 9 F; 16 M 1	<i>Trichuris trichiura</i> <i>Strongyloides fuelleborni</i> <i>Ternidens deminuta</i> <i>Oesophagostomum bifurcum</i> <i>Globocephalus longemucronatus</i>	57 F; 20 M 1 F 18 F; 20 M 10 F; 5 M 1 F; 1 M	<i>Dicrocoelium hospes</i>	1	269
B					<i>Ternidens deminuta</i> <i>Oesophagostomum stephanostomum</i>	9 F; 5 M 1 F			
	<i>Hyostrongylus rubidus</i>	144 F; 108 M			BRACHICERA (L1; L2)	1			
C			<i>Bertiella studeri</i> <i>Strongyloides fuelleborni</i> <i>Pithecostrongylus</i> sp.	3 116 F 2 F; 6 M	<i>Bertiella studeri</i> <i>Trichuris trichiura</i> <i>Ternidens deminuta</i> <i>Oesophagostomum bifurcum</i> <i>Oesophagostomum</i> sp.	1 1 M 1 F 43 F; 26 M 2 F			208
D			<i>Ternidens deminuta</i> <i>Pithecostrongylus</i> sp.	12 F; 6 M 1 F	<i>Watsonius watsoni</i> <i>Strongyloides fuelleborni</i> <i>Trichuris trichiura</i> <i>Oesophagostomum bifurcum</i> <i>Globocephalus longemucronatus</i> <i>Subulura distans</i> <i>Enterobius</i> sp.	105 3 F 1 F; 3 M 342 F; 176 M 1 M 2 M 6 F			658
	<i>Dioclis</i> specimens	152 F; 112 M				496 F; 280 M		0	
	<i>Hermaphroditus</i> spec.	0		148 F; 33M 7		195		1	1
	TOTAL PB	264		189		951		1	1405

As the area of the NPLC has several small villages inhabited, there is an increasing potential risk of transmission to man mainly because man and monkeys share the same habitats, food and water resources. So, monkeys assume an important role as natural reservoirs for human gastrointestinal parasites.

Further studies on epidemiology, pathology and socio-economic implications of these primates' parasites on the local human populations are necessary to establish its real effect on public health.

INTRODUCTION

Natural infections of gastrointestinal parasites have been found in some non-human primates from Guinea-Bissau, like yellow baboon (*Papio cynocephalus papio*) (Tendeiro, 1948), mangrove monkey (*Chlorocebus aethiops sabaeus*) (Azevedo & Meira, 1946; Tendeiro, 1948) and patas monkey (*Erythrocebus patas patas*) (Tendeiro, 1948). In those studies, one of the major striking features was that a great number of species could be transmitted to man. Therefore, in areas where human and non-human primates live together, they both assume an important role as a parasites natural reservoir for each other. The aim of this paper was to determine the parasitological fauna in non-human PRIMATES living at the Natural Park of the Lagoons of Cufada (NPLC) (Guinea-Bissau, West Africa) on February-March 2001 and October-November 2002 in four primates species, and its relationship among the different hosts, including man.

Table I - Gastrointestinal parasites in non-human primates from National Park of the Lagoons of Cufada (Guinea-Bissau).

PHYLUM	CLASS	ORDER	FAMILY	SPECIES
PLATHELMINTHES	TREMATODA	FLAOKOCELIIDA	DICROCOELIIDAE	<i>Dicrocoelium hospes</i>
		ECHINOSTOMIDA	PARAMPHISTOMATIDAE	<i>Watsonius watsoni</i>
NEMATODA	CESTODA	CYCLOPHYLLIDA	ANOPLOCEPHALIDAE	<i>Bertiella studeri</i>
		ENOPLIDA	TRICHURIDAE	<i>Trichuris trichiura</i>
	SECERNENTEA	RHABDITIDA	STRONGYLOIDIDAE	<i>Strongyloides fuelleborni</i>
		STRONGYLIDA	TRICHONEMATIDAE	<i>Ternidens deminuta</i>
			CHABERTIIDAE	<i>Oesophagostomum bifurcum</i>
			TRYCHOSTRONGYLIDAE	<i>O. stephanostomum</i>
			ANCYLOSTOMATIDAE	<i>Oesophagostomum</i> sp.
				<i>Hyostrongylus rubidus</i>
				<i>Globocephalus longemucronatus</i>
				<i>Pithecostrongylus</i> sp.
			<i>Enterobius</i> sp.	
ARTHROPODA	INSECTA	DIPTERA	SPIRURIDAE	<i>Subulura distans</i>
PENTASTOMIDA		POROCEPHALIDA	ARMILLIFERIDAE	<i>Armillifer armillatus</i>

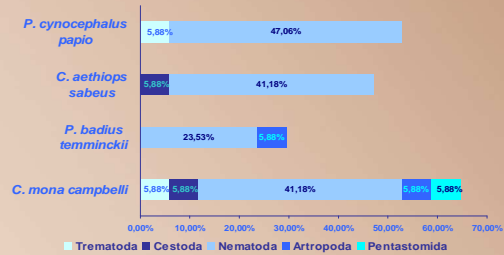


Fig. 1 - Prevalence of the parasitic groups identified.

The overall parasitological burden was higher for NEMATODA and for species found in the large intestine. Although parasitological burden was superior in *Papio cynocephalus papio*, with 658 specimens and inferior in *Chlorocebus aethiops sabaeus*, with 208 specimens, there was only a small difference between the identified species number, which were nine and eight species, respectively (Table II). Excluding *Pithecostrongylus* sp. and *Subulura distans*, according to their gastrointestinal localization and its primate host, females were always in higher numbers than males in diocis specimens (Fig. 2) (Table II). The most prevalent female parasite was *Oesophagostomum bifurcum* in the large intestine of *Papio cynocephalus papio*, with 342 females in opposition to 176 males, followed by *Procolobus badius temminckii*, with 144 females in opposition to 108 males (Table II).

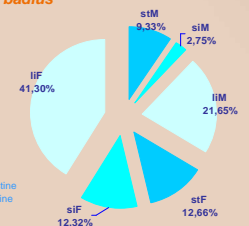


Fig. 2 - Female/Male rate in diocis NEMATODA collected in the gastrointestinal regions.

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