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PREVALENCE OF ENDOPARASITES IN PET FERRETS AND SMALL RODENTS

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Introduction

There are limited studies on the prevalence of endoparasites in pet rodents and ferrets. Most are older[1,2,3,5,6], evaluate only low case numbers and relate only to certain parasite species[2] or animal species[1,6,7]. Therefore, endoparasite results from faecal samples of 1408 ferrets and small rodents examined in a diagnostic laboratory (2019-2022) were evaluated.

Patients and Methods

- Faecal samples from 416 ferrets, 305 rats, 180 gerbils, 173 mice, 117 hamsters, 114 chinchillas and 103 degus were examined for endoprasites.
- 1280 of the samples originated from German-speaking countries (Germany n=1157, Austria n=98, Switzerland n=25) and 128 samples from other European countries (Spain, Romania, Sweden, Denmark, Finland, Norway, France, Italy, Slovakia, Luxembourg, Netherlands, Bulgaria, Czech Republic, Belgium, Slovenia).
- The faecal samples were examined microscopically after enrichment using the flotation method (salt-glucose solution, specific gravity 1.3) and the sodium acetate-acetic acid-formalin concentration (SAFC).

Results

- The detection rate of parasites in ferrets was 3.8% and in small rodents between 14.6% and 27.8% (Fig. 1).
- In 15.2% of the positive samples (n=237), several parasite species were present per sample.
- Ferrets
  - Coccidian oocysts of the Eimeriidae family were most frequently detected in ferrets, followed by hookworm eggs and *Crenosoma* larvae (Fig. 2).
- Rodents
  - In all 6 small rodent species *Giardia* spp. cysts were microscopically detectable.
  - The highest number of parasite species was found in rats (n=10), followed by gerbils (n=8). In chinchillas only one parasite species was found (Tab. 1).
  - Eight of eleven cestode eggs were further differentiated as *Hymenolepis nana*.

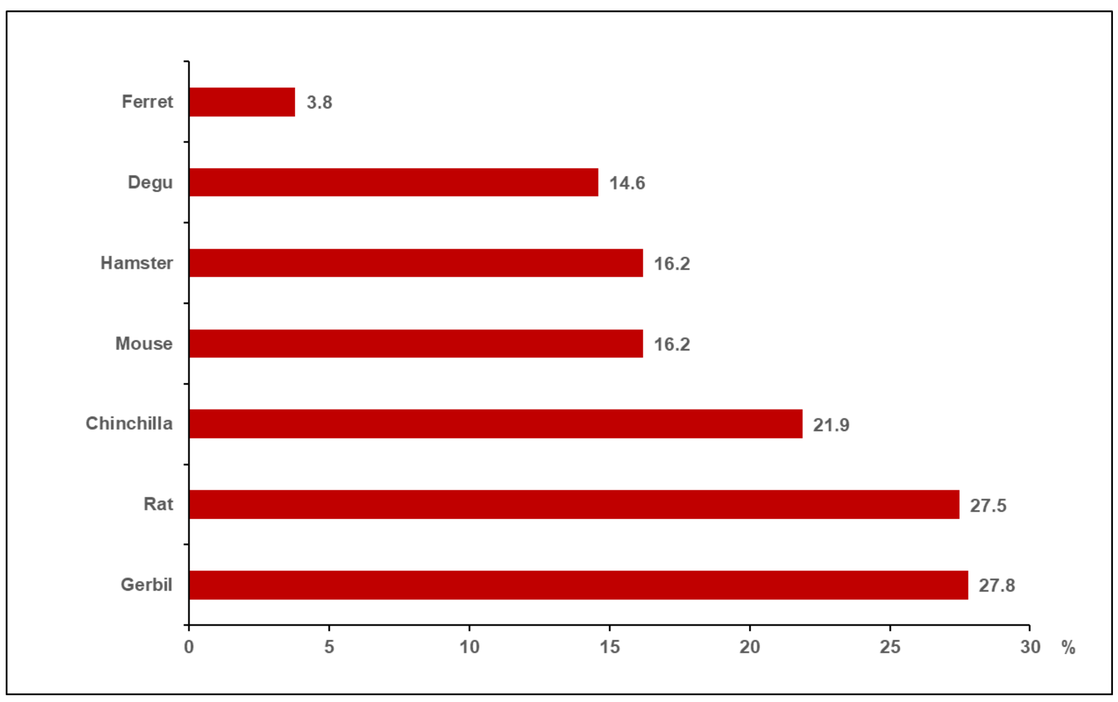

Fig. 1. Frequency of positive faecal samples for parasites in ferrets and small rodents in the years 2019-2022 (%)

Tab. 1. Detection rate of parasite stages in faecal samples of small rodents in the years 2019-2022 (%)

	Rat	Mouse	Gerbil	Hamster	Degu	Chinchilla
Giardia spp.	13.1	2.9	3.3	6.8	10.7	21.9
Eimeria spp.	3.0	1.2	3.9		1.9	
Oxyurids	10.5	13.9	21.1	9.4	2.9	
Cestodes	2.0	1.2	0.6	1.7		
Strongylids	1.3		1.1			
Capillaria-like eggs	0.7		0.6	4.3		
Heterakis spp.	0.7		1.1			
Trichuris muris	0.3	0.6				
Strongyloides ratti	0.3					
Entamoeba muris	0.3		1.1			

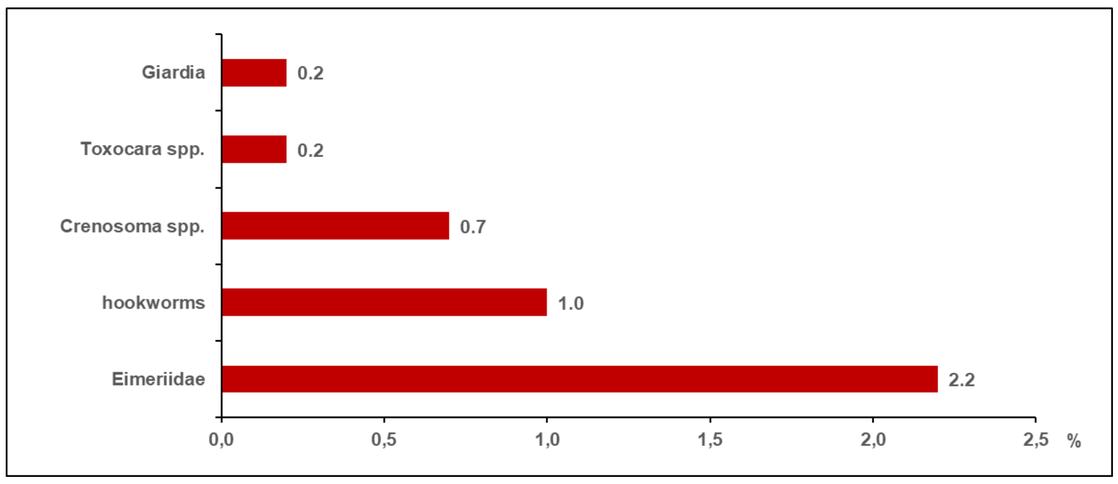

Fig. 2. Detection rate of parasite stages in faecal samples of ferrets in the years 2019-2022 (%)

Conclusion

- This is a current study in which a larger number of faecal findings (n=1408) from 6 small rodent species and ferrets were evaluated.
- Compared to the literature[1,3,5], the frequency of detected parasites was lower in ferrets and either lower or approximately the same in the various small rodents.
- According to the literature[3,4], the eggs from hamsters, rats and gerbils reported here as *Capillaria-like* eggs could also be *Trichosomoides* eggs (*Trichosomoides crassicauda* in urinary bladder, *Trichosomoides nasalis* in nasal cavity).
- Although the prevalence of *Hymenolepis nana* was much lower than in the literature, rodents represent a potential health risk for humans as *Hymenolepis nana* is a zoonotic parasite. Therefore, faecal examination of small rodents is important to minimize potential risk of human infection.
- The detection of *Giardia* in this study was much lower than in a previous study[3] in which an ELISA was used. Studies have shown that the sensitivity of ELISA is higher compared to microscopic examination for *Giardia*[8]. Therefore, the detection of *Giardia* by ELISA should be preferred in symptomatic rodents and ferrets.

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