

Human-pathogenic microsporidia in household dogs and cats in Wrocław (Poland)

Jolanta Piekarska¹, Marta Kicia², Maria Wesółowska², Żaneta Kopacz², Michał Gorczykowski¹, Barbara Sobieraj¹, Martin Kvac^{3,4}, Bohumil Sak³

¹Department of Internal Medicine and Clinic of Diseases of Horses, Dogs and Cats. Division of Parasitology, Faculty of Veterinary Medicine, Wrocław University of Environmental and Life Sciences, Norwida 31, 50-375 Wrocław, Poland

²Department of Biology and Medical Parasitology, Wrocław Medical University, Mikulicz-Radeckiego 9, 50-367 Wrocław, Poland

³Institute of Parasitology, Biology Centre of the AS CR, Branišovská 31, České Budějovice 37005, Czech Republic

⁴Faculty of Agriculture, University of South Bohemia in České Budějovice, Branišovská 31, České Budějovice 37005, Czech Republic

Corresponding Author: Jolanta Piekarska; e-mail: jolanta.piekarska@up.wroc.pl

Microsporidia are obligate intracellular pathogens classified as fungi, which infecting a broad range of animals including humans. Although the reservoir and routes of infection of the human microsporidial species are still not fully explained, numerous studies have identified a zoonotic reservoir of microsporidia in domestic and household animals. In this study, the prevalence, genetic diversity and zoonotic potential of microsporidia in household dogs and cats from Wrocław were investigated.

Microsporidia were identified in the feces of dogs and cats using molecular methods. Fecal specimens were analyzed by amplifying the internal transcribed spacer of the ribosomal RNA genes of *Enterocytozoon bieneusi* and microsporidia from the genus *Encephalitozoon* using nested PCR. A phylogenetic analysis of the obtained PCR products was performed. Microsporidia were found in 10 (9.8%) out of the 102 examined stool samples. Of the 65 dogs examined, four (6.1%) were positive for *E. bieneusi* (genotypes D and PtEbIX) and two (3.1%) for *Encephalitozoon cuniculi* genotype II. Of the 37 cats examined, four (10.8 %) were positive for *E. bieneusi* (genotypes PtEbIX and eb52). Additionally, one dog (2.7%) was concurrently infected with *E. cuniculi*. The presence of microsporidia with zoonotic potential, along with the species-specific *E. bieneusi* and *E. cuniculi*, in dogs and cats suggest that companion animals could be a potential source of microsporidia infections in humans.