ABSTRACT

Trichomonads are anaerobic flagellated protists that are either parasites or commensals. They frequently inhabit digestive, respiratory, and urogenital tracts of vertebrates, including domestic cats and dogs. In these hosts, four trichomonad species has been described: *Tetratrichomonas canistomae* and *Tetratrichomonas felistomae* that are commensals of the host oral cavity; *Pentatrichomonas hominis*, a commensal of intestinal tract that could be found in dogs and cats but also in other mammals including humans; and pathogenic *Tritrichomonas foetus* that causes, in addition to cattle infection, feline intestinal trichomonosis. Although, trichomonads in dogs and cats are probably of cosmopolitan distribution we have no information about their presence in Czech Republic.

The first aim of this study was to distinguish types of trichomonads present in the oral cavity of dogs and cats and to get preliminary epidemiological data. The second aim was to demonstrate the presence of *Tritrichomonas foetus* in cats and dogs in the Czech Republic and to identify potential risk factors for the disease. Cultivation and nested PCR were used to determine the presence of trichomonads in dogs and cats. Sequencing and phylogenetic analysis based on ITS1-5.8rRNA-ITS2 gene sequence was used to identify species of isolated trichomonads. A cross-sectional study was conducted involving cats and dogs from different populations. Host management information was assessed through a questionnaire. Odds ratios (OR) with 95% confidence intervals and P values were calculated by stepwise logistic regression to estimate the magnitude of association between demographic information and the trichomonad infection.

In this study we describe a new *Trichomonas* species from the mouth of dogs and cats, which we suggest to be named *Trichomonas brixi*. Unexpectedly, we also found another trichomonad inmouth of dogs and cats *Trichomonas tenax*, which is known as a commensal from the mouth of human. None of isolated samples belong to previously described *Tetratrichomonas canistomae* and *Tetratrichomonas felistomae*. For the first time was identified *Tritrichomonas foetus* in cats in Czech Republic, with probability of occurrence also in dogs. The prevalence of all oral trichomonads (without species differentiation) was 45,2 % (57/126) in dogs and 19,3 % (26/135) in cats. The prevalence of *Trichomonas brixi* from the mouth of dogs and cats were 30,6 % (34/111) and 6,6% (8/122), respectively and of *Trichomonas tenax* were 8,1 % (9/111) in dogs and 4,1 % (5/122) in cats. *Tritrichomonas foetus* was found in the intestine of 36% of dogs (4/11) and 21,9 % of cats (16/73). Furthermore *Pentatrichomonas hominis* was detected in 4 out of 73 cats, of which two were also positive for *T. foetus*. Our study demonstrated the occurrence of *T. foetus* in the Czech Republic and distinguished species of oral trichomonads in dogs and cats.

Keywords: *Trichomonas*, *Tetratrichomonas*, cultivation, nested PCR, prevalence.