 

# *Ctenocephalides felis* and *Ctenocephalides canis* fleas as a potential vectors and reservoirs of *Anaplasma phagocytophilum* – a preliminary study

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Fleas are abundant ectoparasites in the Northern hemisphere. They can be reservoirs and vectors of many pathogenic agents, i.a. *Yersinia pestis*, *Burkholderia maleli*, *Bacillus anthracis*, *Bartonella henselae*, *B. clarridgeiae*, *Rickettsia typhi* and *R. felis*. Furthermore, many pathogens, such as *Borrelia burgdorferi* sensu lato, *Anaplasma phagocytophilum*, *Bartonella koehlerae, B. quintana, Babesia microti* and *Toxoplasma gondii* were detected in fleas by molecular methods.

Detection of gram-negative bacteria *A. phagocytophilum* in fleas collected from pets lived in cities of Silesia. Material and methods. Fleas were collected from pets in veterinary clinics and animal shelters localized in four cities of Silesian province – Będzin, Sosnowiec, Ruda Śląska and Zawiercie. Nextly, they were conserved in plastic tubes with 70% ethyl alcohol and determined to species and sex. DNA was isolated from single flea by using the ammonia method. For the detection of *A. phagocytophilum* a pair of primers specific for 16SrRNA gene was used. The amplification products were separated electrophoretically on 2% agarose gel stained with ethidium bromide and visualized in UV light. The expected amplification product was 274 base pairs for *A. phagocytophilum*.

The performed study showed that 62 (70.5%) fleas belonged to *Ctenocephalides felis* species, in turn 26 (29.5%) were determined as a *Ctenocephalides canis*. In total 32 (36.4%) of all examined fleas were *Anaplasma* positive. 78.1% of all *Anaplasma* positive samples were *C. felis* fleas, in turn 21.9% – *C. canis*. Prevalence of *A. phagocytophilum* was significantly higher in females of both species.

The results of preliminary analysis showed the presence of bacteria *A. phagocytophilum* in the examined material. Moreover, obtained results point to high prevalence of this pathogen, both in *C. felis* and *C. canis* species. It suggests that examined fleas can be potential reservoirs and vectors of *A. phagocytophilum*. This supposition requires more detailed studies.