

Ixodes crenulatus as a potential vector and reservoir of selected pathogens of tick-borne diseases

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INTRODUCTION. The tick *Ixodes crenulatus* Koch, 1844 is one of 19 species of ticks for permanent fauna of Poland. Occurs throughout the country, nesting in burrows of rodents, predatory mammals and caves. The main hosts of *I. crenulatus* are: rodents, foxes, marmots, badgers, insectivorous mammals as well as domestic and farm animals: dogs, cats, horses, sheep. The medical and veterinary significance of this tick species is little known. To date, the role of *I. crenulatus* in the transmission of pathogenic pathogens such as *Coxiella burnetti* and *Yersinia pestis* has been confirmed. The aim of the research is to determine the presence of selected pathogens of tick-borne diseases in ticks from the species *I. crenulatus*.

MATERIAL AND METHODS. Ticks were collected from domestic dogs and cats in cooperation with veterinary clinics from two provinces: Silesian and Małopolskie. DNA from single ticks was isolated by ammonia method and its concentration was measured spectrophotometrically. *Borrelia burgdorferi*, *Anaplasma phagocytophilum*, *Babesia microti*, *Toxoplasma gondii* and *Rickettsia* sp. Were detected by PCR and nested PCR. For the detection of *B. burgdorferi* s. l a pair of primers specific for the flagellin gene were used, while two pair of primers specific for the 16S rRNA gene were used to detect *A. phagocytophilum*. Protozoa of *B. microti* and *T. gondii* were detected using two specific primer pairs for the 18S rRNA gene and the B1 gene. In turn, *Rickettsia* sp. was detected using primers specific for the gltA gene. The amplification and re-amplification products were electrophoretically separated on 2% agarose gels stained with ethidium bromide and visualized under ultraviolet light.

RESULTS. A total of 22 ticks *I. crenulatus*: 1 larva, 4 nymphs and 18 females were collected from 6 dogs and 6 domestic cats. In 15/23 (65%) specimens *I. crenulatus* the presence of *Rickettsia* sp. *Rickettsia* sp. was found in 57% of ticks collected from dogs and 8% of ticks collected from cats. This pathogen was mainly found in female *I. crenulatus*.

There were no occurrences of *B. burgdorferi* s. l., *A. phagocytophilum*, *B. microti* and *T. gondii* in the examined material.

CONCLUSIONS. Studies have confirmed the potential role of *I. crenulatus* as a vector and/or reservoir for *Rickettsia* sp. However, further research is needed to determine the presence of other pathogens among ticks of this species due to the fact that *I. crenulatus* feeds on dogs and domestic cats, close to the human environment. It is important to prevent ticks in animals.