

# Prevalence of *Rickettsia* spp. in questing *Ixodes ricinus* (L. 1758) and *Dermacentor reticulatus* (Fabr. 1794) ticks in the Wrocław agglomeration, south-west Poland. Preliminary study.

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In Poland, *Ixodes ricinus* (L., 1758) and *Dermacentor reticulatus* (Fabr. 1794) are ticks of significant epidemiological and epizootiological importance, because of their ability to transmit pathogens. The vector role of *Ixodes ricinus* is primarily associated with *Borrelia burgdorferi* s.l. and tick-borne encephalitis virus, and *Dermacentor reticulatus* with *Babesia canis*. In recent years, spotted fever group (SFG) rickettsiae has been also detected among tick-borne pathogens.

The aim of the present study was to estimate the degree of potential exposure to rickettsiae by determining the prevalence of *Rickettsia* spp. in the questing *I. ricinus* and *D. reticulatus* ticks in the urban area of the Wrocław Agglomeration, south-west Poland.

The questing ticks were collected using the flagging method in the Wrocław Agglomeration in 2015-2016. *Rickettsia* spp. were detected using PCR with primers 120–2788 and 120–3599, targeting the *ompB* gene. The positive PCR products, randomly selected, were sequenced to determine species level.

A total of 90 *I. ricinus* ticks (30 nymphs, 30 females and 30 males) and 60 *D. reticulatus* (30 females and 30 males) were examined for the presence of *Rickettsia* spp. DNA of *Rickettsia* spp. was detected in 15.6% of *I. ricinus*. The difference in infection in tick life stages was not statistically significant ( $\chi^2 = 2.199$ ,  $p = 0.333$ ). Sequencing confirmed the presence of *I. ricinus* infection with *R. helvetica*. *D. reticulatus* proved to be positive for *Rickettsia* spp. in 38.3% of cases. The difference between male and female infection was insignificant ( $\chi^2 = 0.635$ ,  $p = 0.425$ ). The rickettsial DNA detected in *D. reticulatus* appeared to be *R. raoultii*.

The molecular detection of tick infection with rickettsiae, including *R. helvetica* and *R. raoultii*, indicates that the urban areas should be considered at risk of tick-borne rickettsioses.