



**P 71 Prevalence and species identification of *Rickettsia* spp. in the hard tick *Ixodes ricinus* in the area of Hannover (Germany)**

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Ticks are one of the most important vectors of several pathogens worldwide. The hard tick *Ixodes ricinus* is the most abundant tick species in Europe and a potential vector for a set of pathogens like viruses, protozoans, and bacteria, e.g. *Rickettsia* spp. The latter are obligatorily intracellular  $\alpha$ -proteobacteria occurring worldwide. In Germany, only regional prevalence data of *Rickettsia* infections of *I. ricinus* are documented. Therefore, the aims of this study were (i) to establish a duplex real-time PCR for a simultaneous detection of *Rickettsia* spp. and *Ixodes* spp. DNA as a positive control to verify DNA isolation; (ii) the examination of 1089 *I. ricinus* DNA samples with the established method followed by identification of *Rickettsia* species by conventional PCR with subsequent sequencing. Furthermore, the results were compared with previous studies evaluating coinfections with *Borrelia burgdorferi* sensu lato (sl) and *Anaplasma phagocytophilum*. A total of 1089 tick samples was examined for coinfection with *B. burgdorferi* sl and a subset of 391 samples for coinfection with *A. phagocytophilum*. The prevalence of *Rickettsia* spp. in 1089 investigated ticks was 33.3% (363 ticks). *Rickettsia* species identification by DNA sequencing was successful in 178 samples and showed a predominant prevalence of *R. helvetica* (98.9%) and *R. monacensis* with a low prevalence of 1.1%. A coinfection with *B. burgdorferi* sl was determined in 9.1% of the tested samples. From the 391 ticks, which could be additionally examined for *A. phagocytophilum* coinfection, 2.8% were found to be coinfecting. 1.3% (5/391) of the ticks were triple-infected with *Rickettsia* spp., *B. burgdorferi* sl, and *A. phagocytophilum*. The present study is the first one dealing with prevalence data for *Rickettsia*-infected ticks in northern Germany. Remarkably, the resulting infection rates are the highest reported for the whole of Germany so far.