



P 20 Identification of *Borrelia burgdorferi* s.l. and *Anaplasma phagocytophilum* in *I. ricinus* and *I. persulcatus* ticks collected in Baltic countries

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Two epidemiologically significant *Ixodes* tick species are distributed in the Baltic countries: *I. ricinus* L. which is spread throughout the entire territories of Lithuania, Latvia, and Estonia, and *I. persulcatus* P.Sch. occurring in the eastern part of Estonia and Latvia. In the present study, infection rates of *Borrelia burgdorferi* s.l. and *Anaplasma phagocytophilum* (the causative agents of Lyme borreliosis and human granulocytic anaplasmosis, respectively) in *I. ricinus* and *I. persulcatus* ticks were investigated.

We examined 419 unfed *I. ricinus* and *I. persulcatus* ticks collected on 19 sampling sites in Lithuania, Latvia, and Estonia in May 2008. Sampling sites were located within 50 km distance from each other and the main gradient of localities was from south to north. Microscopic and morphometric analyses were used for identification of ticks to species level. Taxonomic identification of *I. ricinus* and *I. persulcatus* was confirmed by molecular identification using PCR techniques with species-specific primers. Molecular diagnostic methods were applied to detect pathogens in ticks. Ticks were investigated individually.

The presence of *Borrelia* species was determined with multiplex PCR and confirmed by sequence analysis. The overall infection rate with *B. burgdorferi* s.l. in *I. ricinus* ticks collected in Lithuania was 18.8%, in Latvia 11.1%, and in Estonia 4.3%. The infection rate in *I. persulcatus* from Latvia was 25.9% and in Estonia 19.4%. According to our data, the total prevalence was higher in *I. persulcatus* than in *I. ricinus* ticks, and the prevalence of *B. burgdorferi* s.l. infection in *I. ricinus* decreased from southeast to northwest (from Lithuania to Estonia).

B. afzelii was the predominant genospecies in ticks from all 3 countries and was detected in both tick species. *B. garinii* was identified only in *I. ricinus* from Lithuania. *B. valaisiana* was found in infected *I. ricinus* and *I. persulcatus* ticks in Latvia and Estonia. There were 2 cases of coinfection with *B. afzelii* and *B. valaisiana* in *I. persulcatus* ticks from Latvia.

Detection of *A. phagocytophilum* was carried out using nested PCR targeting *msp4* and 16S rDNA genes. *A. phagocytophilum* was not detected in *I. persulcatus* ticks and found with low prevalence in *I. ricinus* ticks.