

Prevalence of *Anaplasma phagocytophilum* in hard ticks isolated from wildlife animals in the Warmia-Mazury Voivodeship

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Anaplasma phagocytophilum (Rickettsiales: Anaplasmataceae) is an obligatory intracellular, Gram-negative bacterium, inhabiting mainly granulocytes of peripheral blood of humans and animals. It causes anaplasmosis in animals and human granulocytic anaplasmosis (HGA). Vectors of *A. phagocytophilum* are *Ixodes pacificus* and *Ixodes scapularis* in USA, *Ixodes persulcatus* and *Dermacentor silvarum* in Asia and Russia. In Europe (including in Poland) the main vector is *Ixodes ricinus*. Reservoir animals for *A. phagocytophilum* are predominantly: deer (deer, roe deer), livestock (cattle, sheep, horses), small rodents (mice, shrews, voles) and domestic animals, mainly dogs. HGA is a zoonotic disease, classified as the so-called "new emerging infection disease". The symptoms of anaplasmosis are nonspecific and difficult to diagnose. Clinically, HGE is an acute febrile illness that, if left untreated, may result in renal, pulmonary, and neurological complication, commonly manifesting as thrombocytopenia, leukopenia, and normocytic anemia, especially in patients with reduced immunity.

The aim of this study was to identify *A. phagocytophilum* in hard ticks – *I. ricinus* and *Dermacentor reticulatus* which were isolated from wildlife animals (deer and roe deer) shot during hunting in the chosen districts of Warmia-Mazury Voivodeship (north-eastern Poland) in the autumn of 2018. A total of 91 *I. ricinus* females and 101 *D. reticulatus* ticks (7 females and 94 males) were collected (n = 192; Table 1). DNA extracted from ticks was used as template for polymerase chain reaction (PCR) method. During PCR 16S rRNA gene was amplified (247 bp, EHR521/747 primers – Chmielewska-Badora *et al.*,2007). Selected positive samples were bi-directionally sequenced and analysed by BLAST.

The result of the conducted analysis shown that the prevalence of *A. phagocytophilum* was similar in both tested species of hard ticks *I. ricinus* and *D. reticulatus*, 34,06% and 32,67%, respectively (Table 1). The Chi-square statistic was 0.0418 (p-value = 0.83804) for both analysed species. The result was not significant at $p < 0.05$. The BLAST analysis confirmed the association of the obtained sequences to *A. phagocytophilum* species.

Table 1. Prevalence of *Anaplasma phagocytophilum* in hard ticks removed from wildlife animals in chosen communies of Warmia-Mazury Voivodeship

Specie and sex	Communy	n Collected ticks	n Infected ticks	Prevalence [%]
I. ricinus females	Reszel	12	5	
	Kowale Oleckie	23	10	
	Olsztynek	24	7	
	Giżycko	9	4	34,06%
	Bartoszyce	5	1	
	Gietrzwałd	18	4	
	Total	91	31	
D. reticulatus females	Giżycko	7	2	
D. reticulatus males		94	31	32,67%
	Total	101	33	

REFERENCE. Chmielewska-Badora J., Zwoliński J., Cisak E., Wójcik-Fatla A., Buczek A., Dutkiewicz J., 2007. Prevalence of *Anaplasma phagocytophilum* in *Ixodes ricinus* ticks determined by polymerase chain reaction with two pairs of primers detecting 16S rRNA and ank A genes Ann. Agric. Environ. Med. 14, 281-285

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