PREVALENCE OF ANTIBODIES TO *BORRELIA BURGDORFERI* SENSU LATO AMONG NORWAY RATS (*RATTUS NORVEGICUS*)

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In Europe the Lyme disease spirochetes, *B. burgdorferi* s.l., are maintained naturally in enzootic cycles involving wildlife reservoirs, such as *Clethrionomys glareolus* and *Apodemus flavicollis*, and ixodid tick vectors, primarily *Ixodes ricinus*. Although the disease is generally associated with forests infection may be also acquired in parks and other recreation areas in urban centres. The reservoir hosts that could support borreliae in these localities, however, have not been entirely identified yet. Norway rat, *Rattus norvegicus,* is considered as a one of them. Therefore the aim of our study was to determine what was the prevalence of *B. burgdorferi* antibodies in rats derived from various urban and suburban environment.

Rats were live-trapped during all four seasons in 1996-1997. Trapping was carried out in 7 different sites in the three cities of Gdansk, Sopot and Gdynia (northern Poland). The main study site was located in the forested recreational facility - the city ZOO, secondary one in a dump surrounded by bushes and meadows and the others in the ports of Gdansk and Gdynia, in the down-town of Gdansk, Gdansk-Brzezno and in the city of Sopot.

Serum samples were collected and examined for *B. burgdorferi* antibodies by indirect immunofluorescence assay (IFA) using *B. burgdorferi* strain B31 (bioMérieux) and FITC-labelled anti-rat IgG (Sigma). Samples with a titer 1: 80 were considered positive. Negative and positive control sera were tested simultaneously. Positive control sera derived from white Norway rat inoculated subcutaneously with *B. burgdorferi* sensu stricto, native strain Ho-44/10, isolated from *I. ricinus* by the culture method.

Altogether 248 rats were trapped. All belonged to *R. norvegicus* species. Majority of them 149 (60.1%) were collected in suburban areas of the city ZOO and the refuse dump.

B. burgdorferi antibodies were detected in 16 out of 218 (7.3%) serum samples tested. The highest percentage (10.1%) of seropositive rats was noted among specimens collected in the ZOO (Table 1).

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Table 1. Seroprevalence of *Borrelia burgdorferi* among Norway rats, *Rattus norvegicus*, collected in suburban and urban areas of Gdansk, Sopot and Gdynia (northern Poland).

Site of rat trapping	No. rats	Serum samples		
		no. examined	no. positive	% positive
ZOO	89	79	8	10.1
dump	60	54	3	5.6
Gdansk – down-town	31	28	2	7.1
Gdansk - Brzezno	38	33	2	6.1
Gdansk - port	4	4	0	0.0
Sopot	5	4	0	0.0
Gdynia - port	21	16	1	6.3
Total	**248**	**218**	**16**	**7.3**

Our data indicate that rats could represent a potential risk to the health of humans and domestic animals as a reservoir of *B. burgdorferi* spirochetes in urban and suburban environment.

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