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PREVALENCE OF BORRELIAE IN *IXODES RICINUS* TICKS FROM URBAN PARKS

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In May 1992, *Ixodes ricinus* (L.) ticks were collected by flagging vegetation in four urban parks (P) in the town of Brno (ca. 400,000 inhabitants): P1, "Lužánky" park (the city); P2, "Špilberk" park (the city); P3, the Institute garden, Květná Street (a residential area); P4, a park at the "Anthropos Museum" (Pisárky). No ticks were found in P1; a low tick frequency (on a per-flag-hour basis) was observed in P2 (1.0 adults, 0.33 nymphs) and P3 (3.0 adults, 5.0 nymphs), while a very high frequency (48.0 adults, 11.2 nymphs) occurred in P4. The ticks were examined by darkfield microscopy for borreliae (Table 1).

Table 1. Borreliae in female (**F**), male (**M**) and nymphal (**N**) *Ixodes ricinus* collected in Brno urban parks (**P**).(No. positive/no. examined).

	F	M	N	Sum
P2	2/3	1/3	1/10	4/16
P3	1/1	0/2	0/1	1/4
P4	16/60	19/60	4/23	39/143
Total	19/64 29.7 %	20/65 30.8 %	5/34 14.7 %	44/163 27.0 %

The overall mean infection rate was 30.2% in adults and 14.7% in nymphs. The mean intensity of infection was 7, 184 and 116 borreliae per infected tick in P2, P3 and P4, respectively (the range was 1 to 2500); 3.1% of the ticks examined contained more than 100 borreliae. The overall frequency of female and/or nymphal ticks with more than 100 borreliae was 0.32 per person-hour, i.e. one heavily infected female or nymphal *I. ricinus* was encountered, on the average, every 190 minutes of flagging. This figure represents a relatively high risk of exposure of people to the infected ticks in urban parks, approaching that of enzootic countryside areas.

A similar study was carried out in the Brno outskirts in 1988 (Pokorný P., Zahrádková S. 1990: Čs. Epidem. 39: 166-170): 16.4% female, 12.7% male and 3.8% nymphal (overall, 5.1%) *I. ricinus* were found to be infected with borreliae. However, the localities were situated in suburban or extraurban forest habitats. In another study (Pokorný P. 1990: Čs. Epidem. 39: 32-38), 17.0% female, 15.0% male and 8.2% nymphal (overall, 9.1%) *I. ricinus* in the Prague area were observed to contain borreliae. An examination of *I. ricinus* from the Berlin forests by cultivation in BSK II medium revealed a minimum infection rate of 10.2% in females, 5.3% in males and 2.5% in nymphs: 55 of the 56 isolates were identified as *Borrelia burgdorferi* (Kahl O., Schmidt K., Schonberg A., Laukammjosten U., Knülle W., Bienzle U. 1989: Zbl. Bakt. A 270: 434-440). About 8% of 65 female *I. ricinus* collected in two London parks were found to contain *B. burgdorferi* (Guy E. C., Farquhar R. G. 1991: Lancet 338: 253). On the other hand, a very high infection rate (49.7% adults and 29.6% nymphs) of *Ixodes dammini* was described (Maupin G. O., Fish D., Zultowsky J., Campos E. G., Piesman J. 1991: Am. J. Epid. 133: 1105-1113) in the village of Armonk, a residential suburb of New York City which represents a known endemic area of Lyme disease.

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