

## CERCARIAE OF *TRICHOBILHARZIA SZIDATI* NEUHAUS, 1952 (TREMATODA: SCHISTOSOMATIDAE): THE CAUSATIVE AGENT OF CERCARIAL DERMATITIS IN BOHEMIA AND MORAVIA

Cercariae of the family Schistosomatidae play an important role as an aetiological agent of cercarial dermatitis of humans, contracted in fresh and seawaters (“swimmer’s itch” and “seabather’s itch”). In Central Europe cercarial dermatitis is connected with avian schistosomes of the genera *Trichobilharzia* Skrjabin et Zakarow, 1920 and *Bilharziella* Looss, 1899. After penetration into the human skin the development of these blood flukes is incomplete. The aim of our study was to find out which species of schistosome cercariae and which snails are involved in outbreaks of this disease in Bohemia and South Moravia.

A total of 15,334 snails of 12 species from 83 localities (see Fig. 1) were examined during the years 1988–1991. Snails belonged to the following species: *Lymnaea auricularia* (L.) (5,350 specimens), *L. stagnalis* (L.) (7,490 spec.), *L. peregra* (Müll.) (77 spec.), *L. ovata* (Draparnaud) (18 spec.), *Stagnicola palustris* (Müll.) (769 spec.), *S. corvus* (Gmelin) (106 spec.), *Physa acuta* Draparnaud (17 spec.), *Planorbium corneum* (L.) (526 spec.), *Planorbis planorbis* (L.) (571 spec.), *Anisus vortex* (L.) (92 spec.), *Bathymphalus contortus* (L.) (15 spec.), *Bithynia tentaculata* (L.) (303 spec.).

The positivity of snails was determined by examination of emerged cercariae and squashed tissues of all snails. Cercariae were fixed in 10 % formalin and stained either with Nile blue or silver nitrate (1 % AgNO<sub>3</sub>).

Schistosome cercariae were found in 59 (i.e. 0.4 %) of 15,334 snails (Table 1). The snail species infected with bird schistosomes were *L. auricularia* and *L. stagnalis* (prevalence of 0.3 % and 0.6 %, respectively). The study of cercarial morphology revealed that they belonged to the species *Trichobilharzia szidati* Neuhaus, 1952 from the *T. ocellata* (La Valette, 1855) group.

Positive snails were found only in 22 (i.e. 26.5 %) of 83 localities in spite of the fact that conditions at all localities (e.g. relatively clear water, the presence of aquatic birds and water

snails) were favourable for the occurrence and circulation of the parasites causing cercarial dermatitis.

Although other snail species such as *L. peregra*, *L. ovata*, and *S. palustris* have been reported as intermediate hosts of *T. szidati* (Neuhaus S. W. 1952a: Z. Parasitenkd. 15: 203–266; Neuhaus S. W. 1952b: Zool. Anz. 148: 275–285; Broek van den E. 1965: Trop. Geogr. Med. 17: 229–235; Kiliass R. and Frick W. 1964: Angew. Parasitol. 5: 13–45), we never found any infection of these species. The occurrence of *T. szidati* cercariae has only been confirmed in Germany (Dönges J. 1965: Z. Tropenmed. Parasitol. 16: 305–321 – in *L. stagnalis* prevalence of 1.8 % and in *L. auricularia* prevalence of 0.4 %; Kiliass R. and Frick W. 1964: Angew. Parasitol. 5: 13–45; Krampitz H. E. et al. 1974: Münch. med. Wschr. 116: 1491–1496; Hohorst W. 1981: Nat. Mus. 111: 60–69; Feiler W. and Haas V. 1988: Parasitology 96: 493–505; Effelsberg W. 1989: Off. Gesundheitswes. 51: 123–127), Austria (Graefe G. et al. 1973: Zbl. Bakt. Hyg. I Abt. Orig. A 225: 398–405 – in *L. stagnalis* prevalence of 1.2 %), the Netherlands (Broek van den E. 1965: Trop. Geogr. Med. 17: 229–235 – in *L. stagnalis* prevalence of 2.5 % and in *S. palustris* prevalence of 1.3 %) and Czechoslovakia

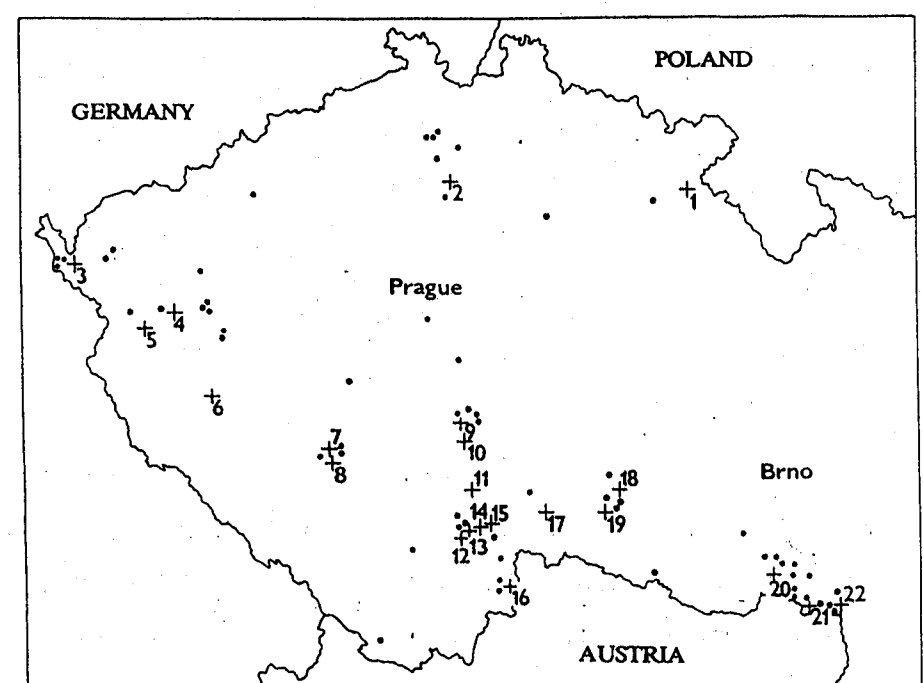


Fig. 1. Distribution of examined localities. (+ No – occurrence of *T. szidati*; for No. see Table 1).

**Table 1.** Localities positive for *Trichobilharzia szidati*

No.	Locality (nearest town)	<i>L. stagnalis</i>		<i>L. auricularia</i>	
		examined	positive	examined	positive
1	Rozkoš (Č. Skalice)	2	0	912	3 (0.3%)
2	Koňský (Mělník)	0	0	7	1 (14.3%)
3	Hůrka 1 (Fr. Lázně)	0	0	33	1 (3.0%)
4	M. Lázně (M. Lázně)	254	1 (0.4%)	5	0
5	Městský (Teplá)	0	0	8	1 (12.5%)
6	Starý (Stod)	6	0	1	1 (100%)
7	V. Pálenec (Blatná)	168	1 (0.6%)	264	0
8	Žoldánka (Blatná)	67	0	36	1 (2.8%)
9	Sudoměřice (Tábor)	297	0	37	1 (2.7%)
10	Košín (Tábor)	1559	5 (0.3%)	0	0
11	Soběslav (Tábor)	139	0	39	1 (2.6%)
12	Ponědraž (Veselí n. L.)	779	3 (0.4%)	0	0
13	Záblatský (Veselí n. L.)	647	1 (0.2%)	39	0
14	Baštýř (Třeboň)	116	1 (0.9%)	27	0
15	Naděje (Třeboň)	121	1 (0.8%)	7	0
16	Petříkov (N. Hrady)	637	19 (3.0%)	0	0
17	Strmilov (Telč)	491	7 (1.4%)	1	0
18	Hladkov (Telč)	0	0	247	2 (0.8%)
19	S. Říše (Telč)	67	3 (4.5%)	0	0
20	N. Mlýny 1 (Mikulov)	2	0	50	1 (2.0%)
21	Nesyt (Lednice)	7	0	152	1 (0.7%)
22	Mlýnský (Lednice)	100	0	234	3 (1.3%)
Total in positive localities.		5459	42 (0.8%)	2099	17 (0.8%)
Total in all localities		7490	42 (0.6%)	5350	17 (0.3%)

(Kolářová L. et al. 1989: Zbl. Hyg. 189: 1–13 – in *L. auricularia* prevalence of 22.6%). We never found any other schistosome species during the present study contrary to previous reports of *T. ocellata* and *Bilharziella polonica* (Kowalewsky, 1895) (Žďárská Z. 1963: Čs. parasitol. 10: 207–262; Zajíček D. and Valenta Z. 1964: Čs. parasitol. 11: 273–293).

The ability of *T. szidati* cercariae to penetrate into the human skin was confirmed experimentally (Kolářová and Horák – unpublished). Two volunteers had been infected and the typical clinical picture of cercarial dermatitis (characterized by Hoeffler D. F. 1974; Arch. Environ. Health 29: 225–239 and others) developed.

Considering the above mentioned facts, it can be assumed that cercariae of *T. szidati* could play a crucial role in the outbreaks of cercarial dermatitis in Bohemia and South Moravia.

L. KOLÁŘOVÁ, P. HORÁK and K. FAJFRLÍK  
Inst. Trop. Health, School of Postgrad. Medicine and Pharmacy, Prague; Dept. Parasitol., Charles University, Prague, and Regional Inst. Hygiene, Plzeň, Czechoslovakia.

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