

## Research Note

# Mermithid nematode parasitizing in Tabanidae (Diptera) in South Moravia, Czech Republic

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### Summary

During the summer late season aspect of the year 2000, the infection by mermithid nematode *Eurymermis* sp. (Mermithidae, Nematoda) was detected in a total of 175 tabanid fly adults of five species collected in South Moravia. The following parameters of mermithid infections depending on the host species were determined: the prevalence within the range of 1.05 – 13.64 %, the intensity of infection 1 – 4 and the mean abundance (extremely low) 0.011 – 0.273. The results indicate that the populations of the tabanid flies in the investigated area were influenced by the parasitizing mermithids in only to a relatively low degree during the period studied.

Key words: *Eurymermis* sp.; Tabanidae; infection parameters; South Moravia

### Introduction

Many, if not all adult insects parasitized by mermithids (Mermithidae, Nematoda) are rendered sterile and the emergence of mermithids in their hosts is usually fatal to the latter. Because of this effect, mermithids have aroused considerable interest for use as biological control agents (Poinar, 1975; Rubzov, 1977; Weiser and Mráček, 1988). For this reason we evaluate the host spectrum and parameters of infection by mermithid larvae in blood-sucking diptera (Tabanidae) from the locality in South Moravia, the Czech Republic.

### Material and Methods

A total of 175 tabanid fly females of six species – *Chrysops relictus*, *Ch. caecutiens*, *Ch. divaricatus*, *Haematopo*

*ta pluvialis*, *Tabanus bovinus* and *T. maculicornis*, collected during the period of August 11 – 19, 2000 at the locality of Lanžhot, were parasitologically investigated. The locality could be briefly characterized as a flood-plain area partially covered with deciduous mixed forest and large meadows. According to the flood intensity, the different numbers of blood-sucking dipteran populations including tabanids are quite common here every year.

The tabanid specimens were individually microscopically examined for the presence of parasitizing agents. Preliminary identification of the nematode individuals found in the tabanids was performed after Müller (1931), Rubzov (1972, 1974, 1977) and Poinar (1975).

The infection parameters (prevalence of infection, intensity range and mean, mean abundance) were established according to Bush *et al.* (1997).

Vaucher specimens are deposited in the collection of the Institute of Vertebrate Biology, Academy of Sciences of the Czech Republic, Květná 8, 603 65, Brno, Czech Republic.

### Results and Discussion

In five tabanid species out of six examined ones, well-developed parasitic larvae (L<sub>3</sub>), identified as *Eurymermis* sp., were detected (Table 1). According to the body morphology and dimensions, the larvae seem to be in a stage when they are just about to leave host's body. The proportions of the larval body were measured: the length 519.30 – 739.70 µm, the maximum width 28.08 – 42.60 µm, the tail length 33.30 – 49.00 µm.

Due to the fast growth of the mermithid parasitic larvae in a body of hosts (Rubzov 1977), the infection of the taba-

Table 1. Prevalence, intensity and mean abundance of the *Eurymeris* sp. infections in tabanids female imagoes

Hosts	Specimens		Prevalence (%)	Intensity		Mean abundance
	Examined	Infected		Range	Mean	
<i>Chrysops relictus</i>	95	1	1.05	1–1	1	0.011
<i>Chrysops caecutiens</i>	16	1	6.25	1–1	1	0.063
<i>Chrysops divaricatus</i>	3	0	0.00	0	0	0.000
<i>Haematopota pluvialis</i>	22	3	13.64	1–4	2	0.273
<i>Tabanus bovinus</i>	8	1	12.50	1–1	1	0.125
<i>Tabanus maculicornis</i>	31	2	6.45	1–2	1.5	0.097

nids larvae in aquatic environment could be realized at the beginning of summer season (June – July).

We should remark the fact that the identification of the mermithid larvae was performed with respect to their relations to the specific systematic group of the hosts (Tabanidae). Based on the results we conclude that the specimens studied are probably conspecific with the species *Eurymeris chrysopidis* Müller, 1931. This species was detected in *Ch. caecutiens* in Germany (Müller, 1931; Rubzov, 1972). Poinar (1975) described the infection of tabanids of the genus *Chrysops* (*Ch. relictus*, *Ch. caecutiens*, *Ch. divaricatus*) by the mermithid nematode *Hexameris albicans* and genus *Tabanus* by the *Mermis* sp.

On the basis of the data obtained (mainly prevalence of infection) it could be concluded that the parasitizing mermithids affect the density of the tabanid populations in the area studied with only a low intensity during the study period. As mermithid larvae host, the most important tabanids seem to be the species of the genera *Haematopota* and *Tabanus*. Mosquitoes (in a less extent as tabanids) are also known to be hosts of mermithid larvae in this area (Halouzka and Baruš, 1999). Therefore more extensive fieldwork should be conducted with regards to the biological relations of the parasite-host system should be more studied on the field system.

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