

**A NEW NEMATODE PARASITE, ESOCINEMA BOHEMICUM GEN. ET SP. NOV. (SKRJABILLANIDAE) OF THE EUROPEAN PIKE**

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**Abstract.** A new nematode genus and species, *Esocinema bohemicum* gen. et sp. nov., is described from the serosa of the air bladder of the pike (*Esox lucius* L.) from Czechoslovakia (North Bohemia). It is characterized largely by the tubiform buccal capsule, division of the oesophagus into the muscular and glandular sections, pointed tip of the female tail, and character of caudal papillae in the male. *Agrachonus* Tikhomirova, 1971 is considered a synonym of the genus *Skrjabillanus* Shigin et Shigina, 1958.

During an investigation of the parasites of fishes carried out in northern Bohemia in 1976, a previously undescribed nematode species of the family Skrjabillanidae was found under the serosa of the air bladder of the pike (*Esox lucius* L.) (size 20—54 cm). Since the morphology of these parasites differs considerably from that of all hitherto known members of the family, creation of an independent genus *Esocinema* gen. n. is proposed. The specific name of this parasite relates to the area of its distribution.

The specimens (1 ♂, 1 mature ♀ containing larvae in the uterus, and 1 juvenile ♀ were available) were fixed by a hot mixture of Ringer's solution and 40 % formalin (9 : 1) and later stored in 4 % formalin. For examination the nematodes were cleared with glycerine. Finally, all the specimens were prepared as whole-mounts in glycerine-gelatine. Drawings were made with the aid of a camera lucida.

*Esocinema bohemicum* gen. et sp. nov.

(Fig. 1)

**Description:** Fine, thread-like nematodes with smooth cuticle. Head end narrowed, truncated. Minute, round mouth surrounded by 8 mouth papillae arranged in two circles. Buccal capsule narrow, thin-walled, tubiform, with somewhat thickened anterior rim. Posterior part of buccal capsule (between posterior circle of mouth papillae and anterior end of oesophagus) surrounded by ring-shaped formation of darker tissue occupying whole width of body. Deirids and excretory pore not located. Oesophagus divided into anterior narrow, fairly long muscular section and posterior, considerably wider glandular section opening into intestine through valves. Numerous large hypodermal cells with conspicuous nuclei present in area of muscular oesophagus. Nerve ring rather big, well visible, encircling muscular oesophagus at its anterior half. Glandular oesophagus approximately twice as long as muscular one, filling up almost whole body width; under microscope appearing distinctly darker than other nematode tissues. Intestine straight, light, its posterior part considerably reduced; rectum and anal pore hardly visible. Mature female approximately twice as long as male.

**Male (holotype):** Length of body 6.20 mm, maximum width 0.033 mm. Length of buccal capsule 0.009 mm, width 0.002 mm. Length of muscular oesophagus 0.635 mm

(width 0.009 mm), of glandular oesophagus 0.960 mm (width 0.015 mm). Nerve ring encircling oesophagus 0.180 mm from anterior extremity. Posterior part of body slender, conical, provided with sublateral alae; these being rather wide, conspicuously narrowed only at end of first third of length of tail, extending up to posterior extrem-

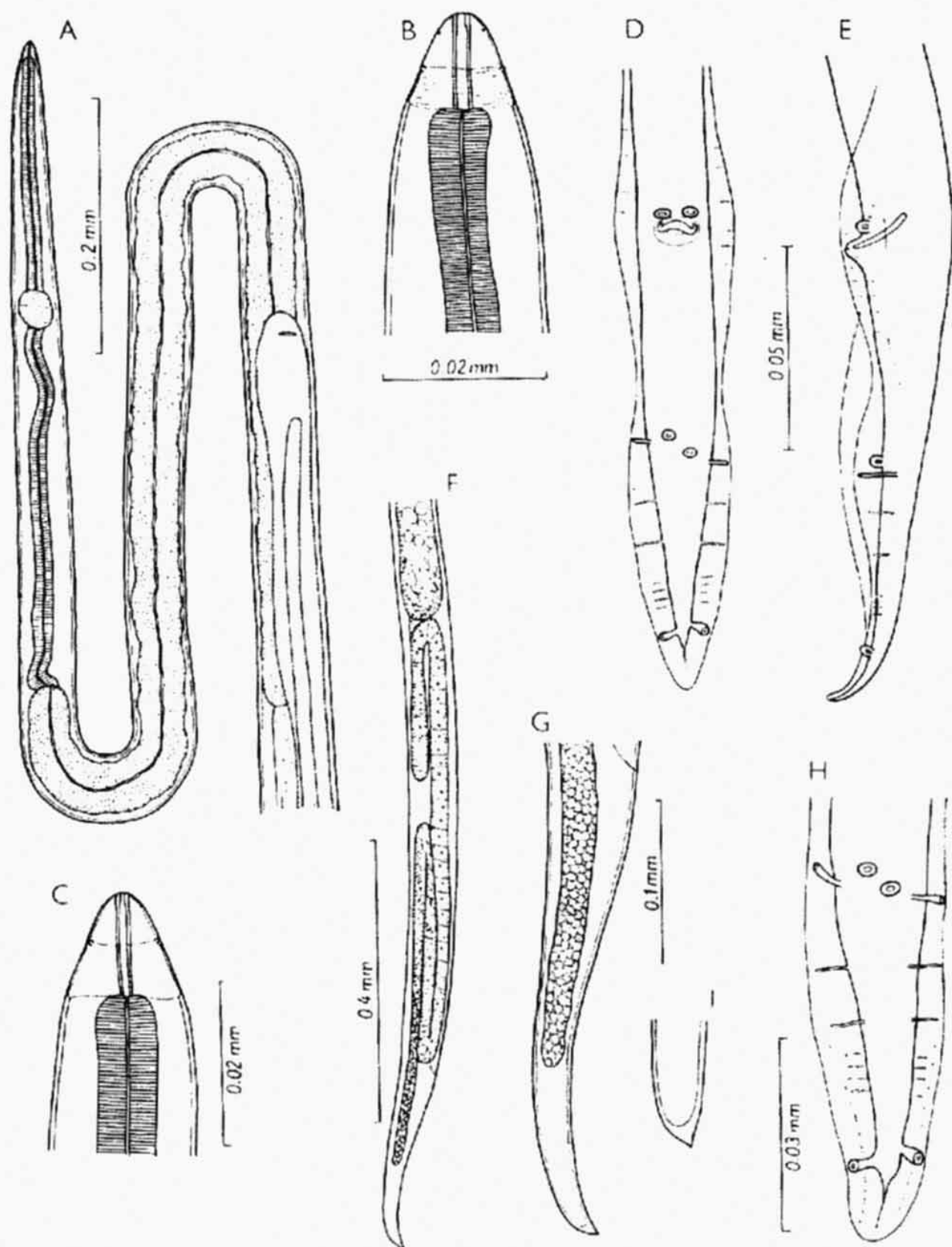


Fig. 1. *Esocinema bohemicum* gen. et sp. nov. A — anterior part of female body; B, C — anterior extremity of female; D, E — tail of male (ventral and lateral views); F — posterior part of female body (lateral view); G — tail of female (lateral view); H — posterior part of male tail (ventral view); I — tip of female tail. (A, B, F, G, I — allotype; C — paratype; D, E, H — holotype.)

ity. Preanal papillae: 1 pair of big sessile papillae located on anterior edge of cloaca. Postanal papillae: 1 pair of big ventral sessile papillae situated in about mid-length of tail and 1 conspicuous pair of subventral pedunculated papillae present at distance of 0.015 mm from posterior extremity; between latter pairs, additional 7 pairs of very fine pedunculated papillae present supporting caudal alae; of these only first pair being well visible (located just below ventral papillae level in about mid-length of tail), remaining pairs strongly reduced and hardly distinguishable even under high magnification (oil immersion). Cloaca markedly protruding from body surface. Weakly sclerotized copulatory plate (about 0.018 mm long and 0.003 mm wide) present. Length of tail 0.129 mm.

Female (allotype — female with larvae) (measurements of paratype — juvenile female — in parentheses): Length of body 14.10 (8.49) mm, maximum width 0.075 (0.036) mm. Length of buccal capsule 0.015 (0.015) mm, its width 0.002 (0.002) mm. Muscular oesophagus 0.504 (0.588) mm long and 0.012 (0.012) mm wide. Glandular oesophagus 1.11 (0.96) mm long and 0.036 (0.021) mm wide. Distance of nerve ring from anterior extremity 0.210 (0.201) mm. Tail conical, 0.195 (—) mm long, with pointed tip. Tubular ovary and oviduct forming coils in posterior part of body; ovary extending posteriorly to mid-length of tail. Uterus very long, occupying major part of nematode body. It is straight, in anterior direction containing gradually eggs, developing embryos and fully formed larvae. Vulva opening at distance of 1.25 (—) mm from anterior extremity. Length of larvae 0.420—0.435 mm, width 0.015 mm.

Type host: pike, *Esox lucius* L. (fam. Esocidae); location: under serosa of air bladder.

Type locality: Břehyně Brook in section between Mácha Lake and fishpond Břehyně near Doksy (North Bohemia — the Elbe River drainage system) (February 17 and May 17, 1976).

Incidence: in 3 out of 85 specimens of *E. lucius* examined from this locality; intensity of infection: only 1 nematode per fish.

Deposition of types: holotype, allotype and paratype deposited in the collections of the Institute of Parasitology, Czechoslovak Academy of Sciences, Prague.

## DISCUSSION

The family Skrjabillanidae was created by Shigin and Shigina (1958) to include the newly described nematode, *Skrjabillanus tincae*, parasitic in the tench (*Tinca tinca*) in Russia. Within the type genus *Skrjabillanus*, two additional species, *S. scardinii* and *S. erythrophthalmi*, were later described by Molnár (1966) from the rudd (*Scardinius erythrophthalmus*) in Hungary. In 1968, all the three species known at that time were found in Czechoslovakia and compared by Moravec (1968) who established for *S. erythrophthalmi* a new independent genus *Molnaria* to accommodate additional two species originally described in the genus *Philometra*. Another genus *Agrachanus* was erected by Tikhomirova (1971a) for *S. scardinii*. All the three named genera of the family Skrjabillanidae have been accepted in the monograph by Ivashkin et al. (1971). The main distinction between *Agrachanus* and *Skrjabillanus* should be the absence of very small basal teeth in the buccal capsule of the latter. However, this difference seems to be rather of specific value; moreover, imperceptible basal teeth are often outlined in the buccal capsule of the type species of *Skrjabillanus* (*S. tincae*) (see Fig. 2a, b in the paper by Moravec 1971). In view of the fact that there are no other characters of generic value by which these taxa may be separated, I consider *Agrachanus* Tikhomirova, 1971 to be a synonym of the genus *Skrjabillanus* Shigin et Shigina, 1958.\* Additional data on the taxonomy, morphology, distribution

\* This synonymy has also been proposed by Chabaud (1975).

and biology of nematodes of the family Skrjabillanidae can be found in the papers by Ergens (1960), Ergens et al. (1975), Garkavi (1972), Matškási et al. (1971), Mészáros (1968), Tikhomirova (1971b, c, 1973, 1975), Tikhomirova and Rudometova (1975), Wierzbicka and Wierzbicki (1973) and others.

As follows from the above discussion, at present the family Skrjabillanidae is represented by only two valid genera, *Skrjabillanus* and *Molnaria*, the members of which are exclusively parasites of cyprinid fishes. Accordingly, *Esocinema bohemicum* sp. nov. is the only representative of skrjabillanid nematodes found in a host belonging to other family than Cyprinidae. Phylogenetical distance of hosts is also reflected in the considerably different morphological characters of this parasite, namely in the shape of the head end, structure of the buccal capsule, type of the oesophagus, shape of the female tail tip, arrangement of caudal papillae in the male, etc., which are, in my opinion, sufficient for creation of an independent genus *Esocinema* gen. nov. Some features of these nematodes (e.g. structure of the oesophagus) show certain affinities with the recently described genus *Guyanema* Petter, 1974 of the related family Guyanemidae.

### *Esocinema* gen. nov.

**Diagnosis:** Skrjabillanidae. Body thread-like, head end narrowed, truncated. Buccal capsule tubiform, thin-walled, its length several times exceeding width. Oesophagus divided into anterior muscular and posterior glandular sections. Female approximately twice as long as male. Tail of male conical, provided with wide sublateral alae; post-anal papillae distributed on posterior half of tail. Weakly sclerotized copulatory plate present. Major part of female body filled with uterus containing larvae; vulva situated in region of glandular oesophagus. Parasites of freshwater fishes.

Type and the only species: *Esocinema bohemicum* sp. nov.

### KEY TO THE GENERA OF SKRJABILLANIDAE:

- 1 Buccal capsule thin-walled, tubiform, its length several times exceeding width; head end truncated. Postanal papillae of male located on posterior half of tail. Tip of female tail pointed, without any processes. Parasitic in pike . . . . . *Esocinema* gen. nov.
- Buccal capsule thick-walled, well sclerotized, saucer- or oval-shaped, its length less or approximately equal to width; head end wide, arch-shaped or provided with four large, anteriorly protruding papilla-like projections. Postanal papillae of male located largely on anterior half of tail. Tip of female tail provided with three small processes. Parasitic in cyprinid fishes . . . . . 2
- 2 Head end arch-shaped; buccal capsule with spacious buccal cavity . . . . . *Skrjabillanus*
- Head end with four large, anteriorly protruding papilla-like projections; buccal cavity practically absent . . . . . *Molnaria*

### НОВАЯ НЕМАТОДА, *ESOCINEMA BOHEMICUM* GEN. ET SP. NOV. (SKRJABILLANIDAE) ОТ ЕВРОПЕЙСКОЙ ЩУКИ

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**Резюме.** Описан новый род и вид нематоды, *Esocinema bohemicum* gen. et sp. nov., из серозной оболочки плавательного пузыря щуки (*Esox lucius* L.) из Чехословакии (северная Чехия). Нематода характеризуется трубчатой формой ротовой капсулы, разделением пищевода на мышечный и железистый отделы, острым кончиком хвоста самки и характером хвостовых сосочков самца. *Agrachanus* Tikhomirova, 1971 считается синонимом рода *Skrjabillanus* Shigin et Shigina, 1958.

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