

CARYOPHYLLAEIDES ERGENSI SP. N. (CESTODA: CARYOPHYLLIDEA) FROM LEUCISCUS LEUCISCUS BAICALENSIS FROM MONGOLIA

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Abstract. The tapeworm *Caryophyllaeides ergensi* sp. n. (Cestoda: Caryophyllidae) is described from *Leuciscus leuciscus baicalensis* from the River Selenga basin in Mongolia. It differs from the only hitherto recognized species of the genus *C. fennica* (Schneider, 1902), mainly in its extremely long uterus with coils extending anteriorly to anterior half, sometimes up to anterior third of the body of gravid specimens.

After a reexamination of the cestode material collected by Dr. R. Ergens in 1966 during ichthyoparasitological expedition to Mongolia, it was found that the cestodes of the order Caryophyllidae originating from the cyprinid fish *Leuciscus leuciscus baicalensis* and labelled as *Caryophyllaeides fennica* represent in the fact a new, hitherto undescribed species. This has been named *C. ergensi* sp. n.

MATERIALS AND METHODS

All studied cestodes were fixed in 4 % formalin, stained with hydrochloric carmine and mounted in Canada balsam. Transverse sections were cut from fixed and stained specimens. The cestodes *Caryophyllaeides fennica* from *Leuciscus leuciscus*, *L. cephalus*, *Rutilus rutilus*, *Scardinius erythrophthalmus*, *Gobio gobio*, *Blicca bjoerkna* and *Vimba vimba* (58 specimens) from Czechoslovakia, from *Blicca bjoerkna*, *Scardinius erythrophthalmus* and *Abramis sapo* (9 specimens) from Hungary, from *Pachylinon pictum* (9 specimens) from Yugoslavia and from *Oreoleuciscus potanini* (4 specimens) from Mongolia were used as comparative material. All the above mentioned material has been deposited in the helminthological collection of the Institute of Parasitology, Czechoslovak Academy of Sciences, České Budějovice. Drawings were made with the aid of a Zeiss microscope drawing attachment. All measurements are in mm.

RESULTS

Caryophyllaeides ergensi sp. n.

Fig. 1A—G, I

Description (holotype measurements in parentheses): Body elongate-oval, length of gravid specimens 13.2—24.1 (16.8), maximum width 1.67—3.15 (3.15) in its anterior part. Anterior (head) end of body widely oval or hemispheric, mostly with blunt end, often wider than other parts of body. Neck lacking, width of body in vitelline follicles region 1.41—2.84 (2.84), in region of first testes 1.53—3.12 (3.12), in ovary region 0.98—2.17 (1.90). Testes oval, situated in medullar parenchyma, measuring 0.16—0.39 × 0.09—0.25, arising 0.78—1.91 (1.22) from anterior end of body and closely, 0.02—0.64 (0.36), behind first vitelline follicles. Testes reaching posteriorly only to 2/3 of body length and some of them being situated along anterior uterine coils. Cirrus sac long to oval, measuring 0.72—1.27 × 0.34—0.61 (1.22 × 0.62), being situated anterior to lobes of ovary near its anterior connecting bridge, opening into common genital atrium. Ovary of a reverse A shape localized posteriorly. Length of ovary 1.8—3.0 (1.9), total width 0.9—1.9 (1.6). Width of anterior lobes

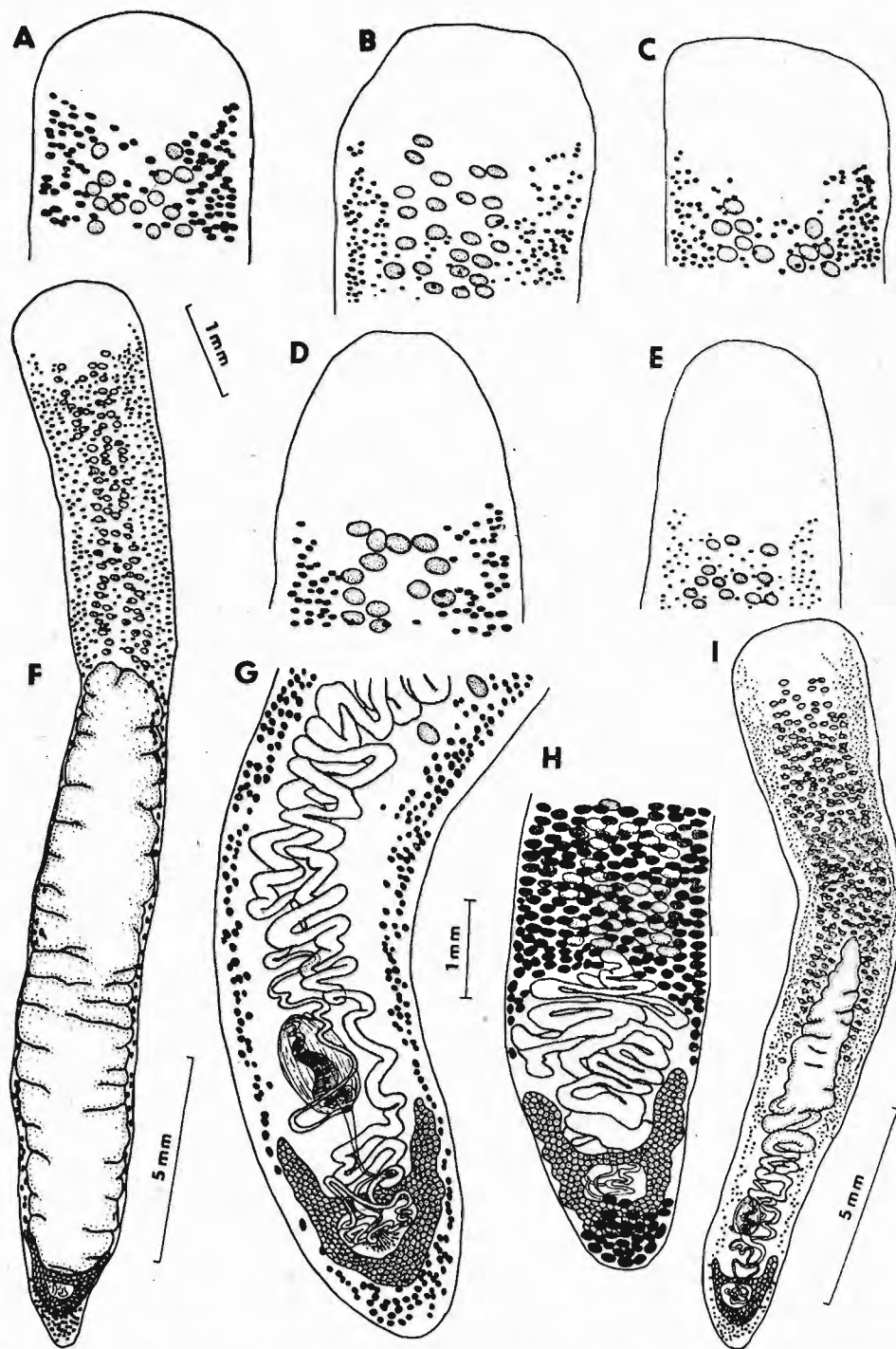


Fig. 1. *Caryophyllaeides ergensi* sp. n. (A—E—anterior part of body, F, I—total view, G—posterior part of body) (I—holotype); *C. fennica* (Schneider, 1902) (H—posterior part of body).

0.25—0.50 (0.38), width of anterior connecting bridge of ovary 0.15—0.24 (0.19), of posterior bridge 0.30—0.64 (0.56). Vitelline follicles oval to elongate, situated in cortical parenchyma, measuring 0.06—0.22 \times 0.04—0.14. Most anterior follicles localized closely behind anterior end of body, at distance 0.63—1.73 (0.86), nearly always anteriorly to first testes. Follicles reaching posteriorly, along uterine coils, to anterior lobes of ovary and several single follicles situated along ovary reaching to postovarial cluster of vitelline follicles. Vagina tubular, short, forming 1—2 coils, opening to common genital atrium. Vagina widened in proximal portion below anterior connecting bridge of ovary, in bent, only slightly expanded receptaculum seminis, measuring 0.22—0.38 \times 0.05—0.09. Uterus tubular, very long, reaching with numerous strongly twisted coils far anteriorly to first half of body, exceptionally to its first third. Length ratio of posterior part of body to first uterine coils to total body length 0.48—0.68 (0.57), mean value 0.58 (see Table 1). This ratio is somewhat smaller in juvenile cestodes 0.35—0.49 (mean value 0.44, length of body 7.2—10.9). Eggs oval, operculated, measuring 0.049—0.058 \times 0.032—0.036.

Table 1. Comparison of relative uterine length of cestodes *Caryophyllaeides fennica* and *C. ergensi* sp. n.

Species		<i>C. fennica</i>					<i>C. ergensi</i>	
Degree of sexual maturity		gravid specimens				maturing specimens	gravid spec.	maturing spec.
Country		Czechoslovakia	Hungary	Yugoslavia	Mongolia	Czechoslovakia Yugoslavia	Mongolia	
Number of measured cestodes		20	8	6	3	10	16	7
Body length (mm)(A)	mean	19.0	23.9	14.9	20.2	8.7	16.8	9.7
	minimum	7.8	12.1	10.5	15.4	6.0	13.2	7.2
	maximum	29.8	48.3	16.6	26.6	12.6	24.1	10.9
Length of poster. part of body to anterior uterine coils (mm) (B)	mean	5.4	6.8	4.4	4.7	2.1	9.8	4.3
	minimum	2.3	4.0	2.9	3.9	1.4	6.7	2.9
	maximum	8.9	13.3	5.3	5.3	2.9	15.3	5.3
Ratio B : A	mean	0.29	0.29	0.30	0.24	0.25	0.58	0.44
	minimum	0.23	0.23	0.22	0.19	0.21	0.48	0.35
	maximum	0.36	0.36	0.34	0.28	0.29	0.68	0.49

Host: *Leuciscus leuciscus baicalensis* (Dybowski, 1874) (Cyprinidae, Cypriniformes).

Localization: intestine.

Locality: River Tul near Songino (vicinity of Ulan Bator, the River Selenga basin), 4—16 April and 30—31 July 1966 (type locality); Lake Ugiy nur (the River Selenga basin), 23 May 1966.

Material studied: 16 gravid and 7 maturing specimens.

Holotype: gravid specimen from *L. l. baicalensis*, (length of fish host 17.4 cm, ♀), examined on 14 April 1966.

Type material: Holotype and paratypes (15 gravid and 7 juvenile specimens) deposited in the helminthological collection of the Institute of Parasitology, Czechoslovak Academy of Sciences, České Budějovice (Cat. No. C — 217).
Etymology: This species has been named in honour of Dr. R. Ergens, a prominent Czechoslovak ichthyoparasitologist, who found this cestode during parasitological examination of fish in Mongolia.

Remarks: The cestode *C. ergensi* sp. n. fully corresponds to the diagnosis of the genus *Caryophyllaeides* Nybelin, 1922 (see e.g. Nybelin 1922, Schmidt 1986) in the shape of ovary, localization of vitelline follicles and testes in anterior part of body, presence of uterine coils in front of the cirrus sac, shape of body, especially the absence of neck, localization of cirrus sac anteriorly near connecting bridge of ovary, cortical localization of vitelline follicles, presence of common genital atrium and receptaculum seminis. However, it differs from a single species of the genus *Caryophyllaeides*, *C. fennica* (Schneider, 1902) (syn. *Caryophyllaeus skrjabini* Popoff, 1924 — see Schneider (1902), Popoff (1924)) in several characters. It is particularly a very long uterus which reaches with its strongly twisted coils up to the anterior half or even anterior third of the body. On the other hand, the anterior uterine coils of *C. fennica* reach only one fifth to one third of its body length (see Table 1). Following additional differences were observed: presence of vitelline follicles along ovarian lobes in *C. ergensi* while in *C. fennica* the vitelline follicles are localized there only exceptionally and somewhat different shape of anterior part of body together with the localization of first vitelline follicles and testes in this part of body.

DISCUSSION

Of the material available (see Scholz and Ergens 1990), the tapeworm *C. ergensi* was found only from *Leuciscus leuciscus baicalensis* in two localities of the River Selenga basin. However, the tapeworm *C. fennica*, a frequent and widely distributed parasite of cyprinids including *Leuciscus leuciscus* species in Europe (see Chubb 1982 for review), was recorded from *Oreoleuciscus potanini* from West Mongolia locality (Char/Bajan/nur). Even though *C. fennica* has been reported from Siberia (Dubinina 1987), it will be necessary to revise, with regard to the present finding of *C. ergensi* in *Leuciscus leuciscus baicalensis*, all the materials determined as *C. fennica* from this host (e.g. Zaika 1965) which occurs in Siberia from the River Ob basin to the River Kolyma basin (Berg 1949). The occurrence of *C. fennica* in *Leuciscus leuciscus baicalensis* in the Mongolian territory cannot be excluded due to the fact that we had only 23 tapeworms available from a total of 281 tapeworms found in 22 specimens of this fish species (see Scholz and Ergens 1990). Moreover, in Europe the species *C. fennica* occurs frequently in members of the genus *Leuciscus*, including the species *L. leuciscus*.

CARYOPHYLLAEIDES ERGENSI SP. N. (CESTODA: CARYOPHYLLIDEA) Y LEUCISCUS LEUCISCUS BAICALENSIS

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Резюме. В работе дано описание цестоды *Caryophyllaeides ergensi* sp. n. (Cestoda: Caryophyllidae) паразитирующей у *Leuciscus leuciscus baicalensis* из бассейна реки Селенга в Монголии. *C. ergensi* sp. n. отличается от до сих пор единственного вида рода *Caryophyllaeides* Nybelin, 1922 — *C. fennica* (Schneider, 1902) прежде всего очень длинной маткой, которая своими петлями доходит у половозрелых цестод в переднюю половину тела, иногда в его переднюю треть.

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