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Gyrodactylus bohemicus sp. n. (Monogenea: Gyrodactylidae) from *Oncorhynchus mykiss* (Walbaum) and *Salvelinus fontinalis* (Mitchill) (Clupeiformes: Salmonidae) in Czechoslovakia

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Key words: Salmonidae, trout farm, *Gyrodactylus bohemicus*

Abstract. *Gyrodactylus bohemicus* sp. n. (Gyrodactylidae: Monogenea) is described from the fins, skin and gill filaments of *Oncorhynchus mykiss* (Walbaum) and *Salvelinus fontinalis* (Mitchill) (Clupeiformes: Salmonidae) from a trout farm in Czechoslovakia. *G. bohemicus* sp. n. is most closely related to *G. thymalli* Žitňan, 1960 and *G. magnus* Konovalov, 1967 in the shape of the anchors, the ventral and the dorsal bar, but can be distinguished from both these species by the shape of the marginal hook proper.

Parasitological investigations of *Oncorhynchus mykiss* and *Salvelinus fontinalis* from the trout farm Kaplice, South Bohemia, Czechoslovakia during autumn 1990 revealed the presence of a new species of the genus *Gyrodactylus* Nordmann, 1832 (prevalence of infection 100 %, intensity 16–27), for which the name *G. bohemicus* sp. n. is proposed.

MATERIALS AND METHODS

Twenty specimens of *O. mykiss* and ten specimens of *S. fontinalis* were obtained from the trout farm Kaplice on 11 October, 1990. The specimens of both fish species were 1^+ year old (body length 120–150 mm) and were transported live to the laboratory for examination under a dissecting scope. *Gyrodactylus* specimens were fixed between the slide and coverslip be means of ammonium picrate-glycerine (Malmberg 1957), routinely dehydrated and embedded in Canada balsam (Ergens 1969). The observations were made with a phase-contrast microscope. All drawings of the opisthaptoral hard parts and the cirrus were made by means of a camera lucida or a drawing prism. The measurements taken are in accordance with Ergens (1985). All measurements are in micrometres (the measurements of the holotype are given in parentheses). For the purpose of comparison of *G. bohemicus* sp. n. with other closely related *Gyrodactylus* spp. material deposited in the collections of the Institute of Parasitology, Czechoslovak Academy of Sciences, České Budějovice was used. The descriptive terminology basically follows that of Malmberg (1970) with "marginal hook proper" replacing "marginal hook sickle", respectively.

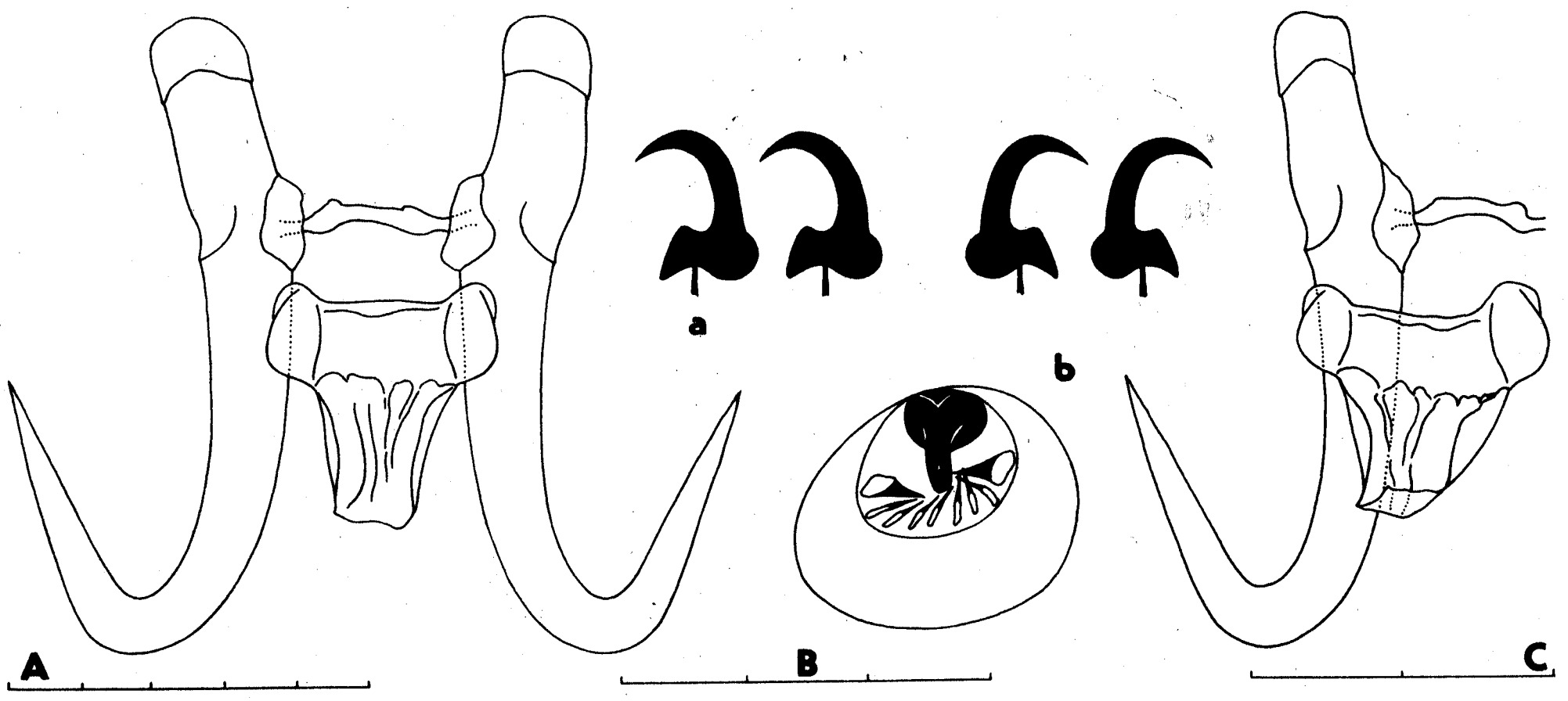

Fig. 1. The opisthaptoral hard parts and cirrus of *Gyrodactylus bohemicus* sp. n. from *Oncorhynchus mykiss* (Walbaum). a – holotype, b – paratype. Scale bars (1 division = 10 μm): A – for anchors and bars, B – for cirrus, C – for marginal hook proper.

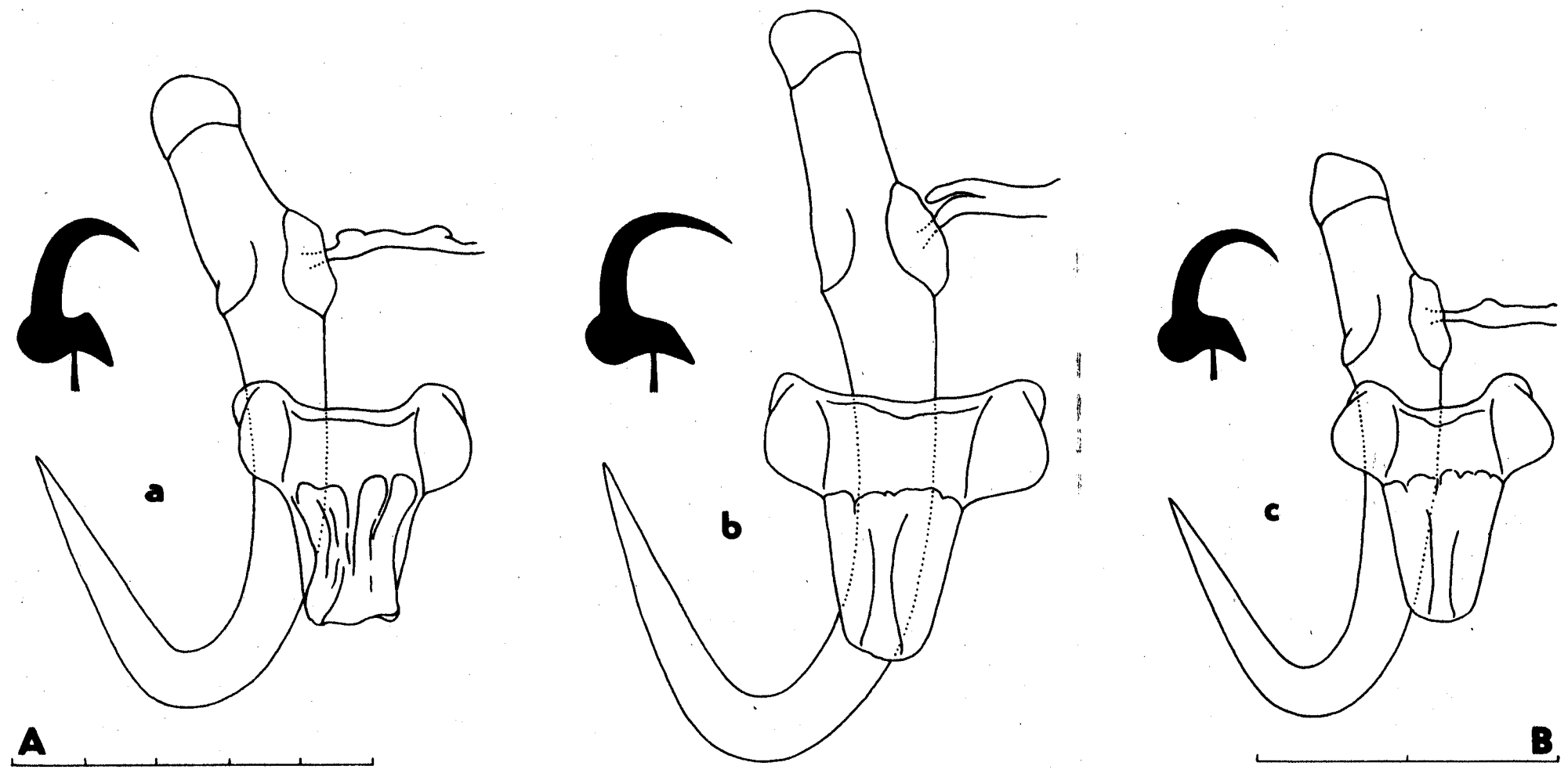

Fig. 2. Comparison of the shape of anchors, dorsal and ventral bar and the marginal hook proper of: a – *Gyrodactylus bohemicus* sp. n. from *Oncorhynchus mykiss* (Walbaum) (trout farm Kaplice, Czechoslovakia, 11. 10. 1990); b – *G. magnus* Konovalov, 1967 from *Thymallus arcticus* (Pallas) (the River Tul near Ulan-Batar, Mongolia, 11. 5. 1966); c – *G. thymalli* Žitňan, 1960 from *Thymallus thymallus* (L.) (the River Malše near České Budějovice, Czechoslovakia, 19. 11. 1984). Scale bars (1 division = 10 μm): A – for anchors and bars, B – for marginal hook proper.

Table 1. Comparative measurements (in μm) of the opisthaptoral hard parts of *Gyrodactylus bohemicus* sp. n., *G. thymalli* Žitňan, 1960 and *G. magnus* Konovalov, 1967

		G. bohemicus sp. n.	*G. thymalli*	*G. magnus*
Hosts:		*Oncorhynchus mykiss* (Walbaum),[1] *Salvelinus fontinalis* (Mitchill)[2]	*Thymallus thymallus* (L.)[3]	*Thymallus arcticus* (Pallas),[4] *T. arcticus grubei* natio *mertensi* Valenciennes[5]
Anchor	total length	87–91	75–84	96–107
	length of shaft	63–66	57–65	69– 76
	length of point	42–43	33–39	39– 40
	length of root	30–32	23–30	27– 33
Ventral bar	length	10–11	9–12	12– 14
	width	32–36	29–34	38– 43
	length of shield	20–22	18–21	20– 21
Dorsal bar	length	3– 4	2– 4	3– 4
	width	23–25	20–22	9–10
Marginal hook	total length	43–45	37–44	44–54
	length of hook proper	9–10	8– 9	9–10
Specimens measured		20	32	7

[1] and [2] from trout farm Kaplice (11. 10. 1990), Czechoslovakia
[3] from the rivers Hron near Brezno (17. 5. 1959), Teplá near Karlovy Vary (4. 4. 1967), Malše near České Budějovice (19. 11. 1984), Dračice near Chlum (4. 10. 1988) and Vltava near Volary (30. 10. 1990), Czechoslovakia
[4] from the river Tul near Ulan-Batar (11. 5. 1966), Mongolia
[5] from the rivers Oklan (1. 8. 1966) and Penzhina (10. 8. 1966), Kamchatka, Russia

DESCRIPTION

Gyrodactylus bohemicus sp. n. Figs. 1 and 2a

Hosts: *Oncorhynchus mykiss* (Walbaum) (type host) and *Salvelinus fontinalis* (Mitchill).
Location: Fins, skin, gill filaments.
Type locality: Trout farm Kaplice, South Bohemia, Czechoslovakia, on October 11, 1990.
Type specimens: Holotype and three paratypes, deposited in the collection of the Institute of Parasitology, Czechoslovak Academy of Sciences, České Budějovice, No. Coll. M – 342.
Specimens studied: Twenty.

Diagnosis: Coverslip-flattened specimens 696–852 (842) long, 114–176 (152) wide at midbody. Total length of anchors 87–91 (89), length of anchor shaft 63–66 (64), length of anchor point 42–43 (43), length of anchor root 30–32 (32). Ventral bar 10–11 × 32–36 (10 × 33), with short lateral processes and a tongue-shaped, 20–22 (22) long shield. Dorsal bar 3–4 (3) long and 23–25 (25) wide. Total length of marginal hooks 43–45 (44–45), length of hooks proper 9–10 (10). Cirrus 22 in diameter, with one large spine and nine small spines in one arched row. Pharyngeal processes long.
Differential diagnosis: With regards to the shape of the anchor complex, *Gyrodactylus bohemicus* sp. n. is most similar to *G. thymalli* Žitňan, 1960 and *G. magnus* Konovalov, 1967, but differs from both these species in regard to the shape of the marginal hook proper (see Fig. 2). *G. bohemicus* sp. n. may also be distinguished from *G. thymalli* by the longer size of the anchors and from *G. magnus* by the smaller size of the anchors and the ventral bar (see Table 1).
Remark: *Oncorhynchus mykiss* and *Salvelinus fontinalis* were introduced from North America to Europe in the form of fertilized eggs in about 1880. There seems no possibility that *Gyrodactylus* spp. reported from both these fish species in North America (Cone et al. 1983) have been introduced to Europe together with the eggs. In this respect, rainbow trout and brook trout are the "wrong hosts" for *G. bohemicus* sp. n.

Etymology: The species is named after Bohemia, part of Czechoslovakia where the type locality is situated.

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