MYXOBOLUS BASILAMELLARIS SP. N.  
(MYXOZOA: MYXOSPORA), A PARASITE 
OF THE GILLS OF COMMON CARP  
(CYPRINUS CARPIO L.)

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Abstract. A new myxosporean, Myxobolus basilameellaris sp. n., is described from carp fry and fingerlings. It forms cysts in the gill arches. Spores have polar capsules of different size, mucous envelope and lack intercapsular appendix and ioidinophilous vacuole.

During regular veterinary survey of carp fry and one-summer carps in the Hortobágy ponds in Hungary a Myxobolus species developing at the bases of the gill filaments was found. This previously unknown species infected about 25% of the carp populations examined. By the characteristic location of its cysts in the gills it could be easily distinguished from the concomitantly occurring Myxobolus dispar and M. cyprinii infecting the apical and median part of the gill filaments. Apart from the different site of the cysts on the gills also the morphology of the spores showed clear differences from the two above mentioned species. We present the description of this species.

Myxobolus basilamellaris sp. n.

Only mature cysts, i.e., trophozoites filled with mature spores were found. White, pinhead-sized cysts are wedged into the cartilaginous branchial arch so that they are cleaved into two parts. The inner part adheres to the inner surface of the branchial arch while the outer part is located at its outer surface between the cartilaginous gill rays that form the axis of two neighbouring gill filaments. The size of each part of the cyst is about 0.6–0.9 mm. The inner and outer parts of the cysts are connected by an isthmus (Plate I, Fig. 1). Less often roundish cysts undivided into two parts can also be detected.

In the trophozoites, an ectoplasmic layer is differentiated showing moderately coarse granulation and having a thickness of 10–14 μm. Panseudoblasts are disporous.

Spores are broadly ellipsoid in frontal view, sometimes almost spherical with both ends equally rounded (Fig. 1; Plate II, Fig. 1). In sagittal view, the spore valves are symmetrical and their suture edge is rather thick. The average spore size in different populations ranges between 8.1–8.8× 9.2–10.6 μm, the variation being 7.3–9.9× 7.7–12.2 μm, its thickness (in sagittal view) 4.5 (4.2–5) μm. Sutural markings, mostly distinct, are up to 10 in number and distributed almost all around the circumference of the spore. The two polar capsules are of unequal size, the average size of the larger ranging between 2.9–3.1× 4.2–4.5 μm (variation being 2.2–3.3× 3.2–5.4 μm), the average size of the smaller one ranges between 2.2–2.3× 3.4 to 3.7 μm (variation 1.8–3.3× 2.5–4.4 μm). The threads of the polar filament coil...
are closely wound and are situated obliquely to the longitudinal axis of the capsule (45° to almost perpendicular). There are 5–6 (sometimes 7) threads in the larger capsule and 4 (sometimes 3) in the smaller one. As a rule, there is no triangular intercapsular appendix. There is no cloacal mucous envelope, mostly well developed at the posterior end of the spore, sometimes a thin envelope all around the spore (Plate II, Fig. 3).


The last of the three, *M. diapar* Thélohan is a species commonly encountered on carp gills in Hungary, Czechoslovakia and probably in other countries of Central Europe, and therefore it is desirable to differentiate it properly from our species. Shulman (1966) lists *M. diapar* from 31 host species and it is questionable whether it is this myxosporan which really infects all these hosts. Populations from carp gills, both according to Thélohan’s (1885) original description and our own observations differ in having a small but distinct intercapsular appendix, an anteriorly slightly tapered spore (Plate II, Fig. 2), much less developed mucous envelope and in the shape of polar capsules which are less stubby and more elongate than in the present species. Another morphologically different species, *M. cyprini* is frequently found in carp gills. However, while our species forms cysts in the cartilage of the gill arches, *M. cyprini* does not form cysts and is found in gill filaments. All these differences are relevant enough to establish the species in question as *Myzobolus basilamellaris* sp. n.

We allot it to the genus *Myzobolus* although there is no idiophathous vacuole. We consider its presence hardly sufficient as a generic character in a modern taxonomy of myxosporidae (see also Walliker 1968; Lom 1969; Desser and Patterson 1978). Even in species where it can be demonstrated, this vacuole is a highly variable feature and not a dependent reliable character (see Walliker 1968). In *M. diapar*, Thélohan (1885) mentioned a vacuole difficult to stain, while we have never succeeded in proving it satisfactorily. There are many similar examples which make the distinction between *Myzobolus* and *Myzosoma* untenable, in spite of the surviving bias of many fish parasitologists.

Type material, consisting of histological slides showing characteristic localization of the parasite within the gill arches, has been deposited in the collection of type specimens of the Institute of Parasitology, Czechoslovak Academy of Sciences.
Fig. 1. The cyst of *M. basienscularis* wedged into the cartilaginous branchial arch (arrows). The upper part is located between the bases of two adjacent cartilaginous gill rays, the lower part is inside the branchial arch. H & E (x 500).

Fig. 1. Fresh spores of *Mycobolus basienscularis*. Note the absence of intercystular appendix (arrows) (x 2700). Bar indicates 10 μm. Fig. 2. Fresh spores of *M. dispor* printed at the same magnification as Fig. 1. Note the intercystular appendix (arrows) and the different spore shape. Fig. 3. *M. basienscularis* spores in India ink preparation to reveal the mucous envelope (x 1150).