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Rediagnosis of the Old World Cyprinodont genus *Aphanius*

by

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Compared with their New World relatives of the subfamily Cyprinodontinae, the Old World Cyprinodonts are but little known. However, some interesting accounts on Turkish species, discovered by KOSWIG, SÖZER and AKSIRAY, have recently been published. Besides the species known, several new forms and species are described.

While compiling an account on these fishes suitable for the home aquarium (HOEDEMAN & BRONNER, 1950—1951), we felt some characters need reexamination, not only of *Aphanius*, but also of the North African genus *Tellia* which is said to differ from *Aphanius* only in the absence of ventral fins.

We found the Old World genera and species, referred to in this paper to be closely related, and doubtless forming a phyletic unity, quite well separable from the New World genera of this subfamily. For that reason the writer founded already (cf. HOEDEMAN, 1949) the tribes *Aphaniidi* and *Cyprinodontidi*¹⁾, differing in the characters given in the key.

Close to *Aphanius* is the genus *Tellia*, of which four specimens could be examined owing to the kind help of Dr. BERTIN who sent us these from the collection in the Paris Museum. We found that there is no reason to separate *Tellia* from *Aphanius*, but *Aphanius dispar* is quite well separable from *Aphanius*, and the new generic name *Aphaniops* is proposed for this species.

Classification of the Old World Cyprinodontinae

The following key gives the characters on which the tribes *Aphaniidi* and *Cyprinodontidi*, and the genera of the first tribe can be distinguished.

- I. Teeth tricuspid, middle cusp the longer, usually sharply pointed, side cusps small; preorbital margin rather narrow, usually one half eye

¹⁾ In COPEIA (1950: 326—327) uniform endings for groupnames in Fish Classification are proposed, which I should like to accept.

diameter or less, but not as narrow as in *Rivulidi*; preorbitals not firmly united, in contact with each other for only one third or less of the inner margin, the backward directed processes narrow;

..... tribe *Aphaniidi* HOEDEMAN, 1949

a. squamation normally developed.

1) dorsal with 8 or 9 rays; ventrals well developed, with 7 or 8 rays; no dermal sheath around the anterior anal rays; length up to 80 mm. genus *Aphaniops* gen. nov.

2) dorsal with 10 to 14 rays; ventrals well developed, rudimentary or entirely wanting, with 5 to 7 rays if present; dermal sheath around first few anal rays present, naked or covered with scales; length up to 65 mm.

..... genus *Aphanius* NARDO 1827

b. squamation entire, in which case there are more than 30 scales in a median lateral series, or partly developed; in both cases the scales covering each other for less than half their diameter, they may even be entirely free from each other,

..... genus *Anatolichthys* KOSWIG & SÖZER, 1945

II. Teeth tricuspid, middle cusp not always the longer, usually spatulate, not pointed as in *Aphaniini*; preorbital margin more than one half eye diameter; premaxillaries firmly united, in contact with each other for nearly the entire inner margin, the backward directed processes rather broad tribe *Cyprinodontidi* HOEDEMAN, 1949

The species referred to the last named tribe are *Cyprinodon*, *Jordanella*, *Floridichthys*, *Garmanella*, and perhaps the group, formed by the genera *Cubanichthys*, *Chriopeops*, *Lucania* and *Leptolucania* (referred to the tribe *Fundulidi*) may belong here. We have, however, no material available to enter this matter now, but are in doubt if they are *Fundulidi*.

Genus

Aphaniops gen. nov.

(type *Lebias dispar* RÜPPELL, 1828)

The type-species, on which we found the new genus, is the only one known at present that does not fit into the generic diagnosis of *Aphanius* given below.

Aphaniops dispar (RÜPPELL)

SYNONYMS: Senckenberg Museum, Frankfurt am Main: collection Dr. RÜPPELL from the coast of Abyssinia.

Lebias dispar RÜPPELL, 1828, p. 66 (Coast of Abyssinia); Garman, 1895, p. 34, p.p.

Cyprinodon lunatus CUVIER & VALENCIENNES, 1846, p. 121; — HECKEL, 1843, p. 321, 323, 329;

Cyprinodon dispar GÜNTHER, 1866, p. 303, p.p.; — KLUNZIGER, 1871, p. 587; BOULENGER, 1915, pp. 20—21.

Cyprinodon stoliczkanus DAY, 1872, p. 258.

Aphanius dispar (RÜPPELL) in most modern literature.

DIAGNOSIS: As *Aphanius*, differing in the total absence of a dermal sheath (genital pouch) around the anterior anal rays; only 8 or 9 rays in the dorsal fin, and usually 7 or 8 rays in the ventral fins, which are well developed; the first dorsal ray is inserted halfway between the posterior margin of the orbit and the caudal root, only slightly more posteriorly in the females; length up to 80 mm.

Name: *Aphaniops* = *Aphanius* — *opsis*; resembling *Aphanius*.

Genus

Aphanius Nardo, 1827

(type *Lebias fasciatus* VALENCIENNES, 1821)

This genus was first described by NARDO for two „species” from Mediterranean waters, which proved both to be identical with *Lebias fasciatus* of VALENCIENNES. The type species therefore becomes „fasciatus”, and not „calaritana”, which is a synonym of fasciatus.

REDIAGNOSIS. — Small fishes; teeth tricuspid, the middle cusp generally sharply pointed and considerably longer than the side cusps, in a single series in each jaw; in the upper jaw both premaxillary and maxillary denticulate; no vomerine teeth; palatine teeth minute, differently shaped, in a triangular patch, covering most of the bone.

Scales rather large, normally covering the whole body and most of the head; each scale covered for more than half its diameter by the surrounding scales; less than 30 scales in a median lateral series; scales mostly rather loosely imbricated, especially on the head; squamation of top of snout highly variable. Preventral scales less than 15. Scaly flap separating ventral fins composed of 1 to 6 scales.

Dorsal moderate, rounded (in older males the posterior rays may have grown longer), with 1 or 2 unbranched and 9 to 13 branched rays. Anal much as dorsal, with 1 or 2 unbranched and 8 to 12 branched rays. Caudal emarginate, truncate or rounded, never lobate, lunate or lyre-shaped. Ventrals present, reduced or wanting, if present with 1 unbranched and 4 or 5 (usually 5) branched rays.

Body generally slenderer than in *Cyprinodon*. Snout very short, squarely truncate, mouth terminal; strongly directed upwards, lower jaw the longer. A more or less developed sheath around the anterior anal rays; the dermal sheath may be naked or scaled.

Depth 2.7 to 4.3 in length without caudal, nearly equal in both sexes, the females greater than the males. The back is much less elevated than in *Cyprinodon*. Intestine short to medium. Caudal peduncle narrowest, slightly in advance of the caudal root. Scales in both sexes alike, or with contact organs (ctenii) in nuptial males (found in *Aphanius fasciatus* by SÖZER).

RANGE: Southern Europe, Africa, Asia Minor.

HABITAT: The same as for *Cyprinodon*, in fresh, brackish and salt coastal waters, including the typical salt water remains in the inland. Prefers quiet water, as they are not adapted for swimming against strong current. They select the backwaters in streams and do particularly well

in springs, marshes, and sloughs or ponds, just as *Cyprinodon* (cf. MILLER, 1948). Extremely suitable for aquarium purposes. They feed well on small crustaceans, gnat larvae, worms, and soft particles, especially algae. Omnivorous fishes, always found in rather large populations.

Reduction and lack of ventral fins.

Reduction and lack of ventral fins.

As has been said before, the only species of this tribe which lacks ventral fins is *Aphanius* (formerly *Tellia*) *apodus* from the mountain streams in North Africa. In the four specimens in our collection (Z.M.A. No 100.062, obtained from the Paris Museum), there are no traces of these fins, not even in the juvenile specimen.

In this connection I should like to draw attention to the loss of ventrals in many other species of fishes kept in home aquaria, which normally have these fins in their natural state. I have notes and material of fry of *Barbus tetrazona* (one complete brood, and several specimens from other breedings) which lack the ventrals entirely, while in their parents these fins were normally developed. Also specimens of *Colisa labiosa*, *Colisa lalia*, *Pterophyllum scalaris*, *Platypoecilus maculatus* and *Platy-poecilus variatus* may lack ventral fins.

In *Cyprinodontidi* as well as in *Aphaniidi* species are known in which the ventrals are but poorly developed (cf. *Cyprinodon lacinatus*, *C. nevadensis*, and *C. diabolis*, MILLER, 1948: 83). *Aphanius apodus* appears to be close to *Aphanius iberus* from Spain and Algeria, and resembles *Aphanius sophiae* and *Aphanius chantrei* in several respects. *Aphanius iberus* is less near to *A. fasciatus* as is generally supposed. In *A. iberus*, *A. chantrei* and in most specimens of *A. sophiae* the ventrals are reduced in size, and many of them have only 5 rays in these fins instead of 6, as is normally the case in all other *Aphanius* species.

In all of these species the preorbital area is naked.

This non development or the total lack of ventral fins may be caused by factors in the diet or the habitat of the fishes, this condition probably being an arrested juvenile stage which may be compared with neotenic circumstances.

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