

NOTE ICHTYOLOGIQUE

NEW RECORD OF *CARAPUS DUBIUS*
(CARAPIDAE) OFF MADAGASCAR?

by

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RÉSUMÉ. - Nouveau signalement de *Carapus dubius* (Carapidae) à Madagascar ?

La collection ichtyologique du MNHN renferme un Carapidae de Madagascar identifié comme *Carapus dubius*. Cette espèce étant connue uniquement au niveau des côtes ouest de l'Amérique centrale et à Hawaï, il subsiste un doute quant à l'existence de deux populations allopatriques de *Carapus dubius* ou de la présence d'une nouvelle espèce.

Key words. - Carapidae - *Carapus dubius* - Madagascar - New record.

When checking the identification of the Carapidae in the MNHN collection (Muséum national d'Histoire naturelle, Paris) a specimen of *Euryleuron owasianum* (Matsubara, 1953) (MNHN 1992-0914) caught off Madagascar (20°S, 42°30'E) was found to be incorrectly identified. The specimen is very close to *Carapus dubius* (Putnam, 1874), which is known from the Eastern Pacific (Markle and Olney, 1990).

MATERIAL AND METHODS

Counts and measurements follow Williams and Shipp (1982), and Markle and Olney (1990). The meristic data have been counted on radiographs, and the morphometric data has been measured with a calliper (to the nearest 0.1 mm).

RESULTS

Meristic and morphometric data are given in table I; 20 (+1) means: 20 precaudal vertebrae with the 21st being the first vertebra with a haemal spine. However, the haemal spine is smaller than the following ones. None of the vertebrae has pleural rib.

Description

Maxillary toothless. Two enlarged conical teeth present on anterior extremity of right premaxillary (PMX), only one on left. Small conical teeth organized in several rows follow all along the bone. Those of inner row longer and incurved towards interior of mouth cavity. Outer cardiform teeth still present at anterior part of left and right PMX, 12 and 13 respectively. However, empty places indicate 14 on both PMX. Several outer enlarged conical teeth present on anterior part of dentary, organised anteriorly in two rows. All incurved towards interior and back of mouth cavity. Small conical teeth also present on dentary, organized in 2 or 3 rows, pointing to interior of mouth cavity but not to back as they are inserted on internal lateral face of dentary. Small conical teeth of palatine organized in 4 or 5 rows anteriorly, ended in 2 rows posteriorly. Vomer broken, but dentition observable. Six enlarged conical teeth in its center: 1 anterior, followed by 2 transversally aligned, and then 3 antero-posteriorly aligned, surrounded by small conical teeth. Smaller teeth also present on 2nd, 3rd, 4th

pharyngo-branchial, 5th ceratobranchial and 3rd hypobranchial.

Colour cream-like. However, small red-brown patches visible at base of anal and dorsal fins. Dorsally two sagittae of inner ear clearly visible, as well as cerebellum. Internal melanophores present in brain, scattered laterally on abdominal wall and more concentrated dorsally with regard to swimbladder. Small melanophores also visible by translucence along the backbone.

Swimbladder dorsally almost all along visceral cavity, no central constriction noticeable and closely joined to first parapophyse (on 3rd vertebra) and highly enlarged posteriorly.

Biology

There is no information on the label or in the register whether the specimen has been seen or caught in a host, or about the depth of capture.

DISCUSSION

The dentition of the premaxillary (outer and anterior teeth cardiform, enlarged conical teeth at the tip, and several rows of small conical teeth in its full length) and of the dentary (outer enlarged teeth conical and several inner rows of conical teeth in its full length) shows that the specimen belongs to *Carapus* following the new diagnosis proposed by Parmentier *et al.* (2000a). In this phylogenetic study three carapid species, previously known as *Encheliophis* (*E. boraborensis*, *E. dubius* and *E. homei*) (Nielsen *et al.*, 1999) have been transferred to the *Carapus* genus with the following names: *C. boraborensis* (Kaup, 1856), *C. dubius* (Putnam, 1874) and *C. homei* (Richardson, 1844).

The absence of a central constriction of the swimbladder brings our specimen near *Carapus boraborensis*, *C. dubius* and *C. homei* (Parmentier *et al.*, 2000a). According to the data given by Markle and Olney (1990), it differs from i) *C. boraborensis* in P₁ (15-20), A₃₀ (45-57), ED (0.13), PL (0.24), BD (0.65), ii) *C. homei* in P₁ (17-21), PCV (16-19), A₃₀ (53-61) counts, and in melanophores that are uniformly and densely distributed on all the body in the latter.

The dentition, the external and internal coloration, the meristic counts and the morphometric measurements are in agreement with *C. dubius* except for the A₃₀ and D₃₀ counts (Table I). According to Markle and Olney (1990) large range overlaps may exist for these data, so this only difference is not suitable to separate the MNHN 1992-0914 specimen from *C. dubius*. The only great inconsistency is obviously the distribution as it is hitherto known only from Pacific waters of central America and the Hawaii islands (Nielsen, 1999; Paredes-Rios and Balart, 1999; Parmentier *et al.*, 2000a, 2000b). Trott and Chan (1972) identified a *Carapus* specimen from a Mollusca Lamellibranchia in the China Sea as a *C. homei*. However, according to Markle et Olney (1990), the specimen could be a *C. dubius*, but, unfortunately, it could not be located.

The present specimen could be either a *C. dubius*, enlarging its distribution very much, or a new species. More specimens are needed to clarify the question.

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	MNHN 1992-0914		<i>C. dubius</i> (Markle and Olney, 1990)	
Meristic	N = 1		N = 25	
Precaudal vertebrae (PCV)	20(+1)		19-21	
Pectoral-fin rays (P1)	16		16-20	
Anal-fin rays to 31st vertebra (A30)	44		47-54	
Dorsal-fin rays to 31st vertebra (D30)	33		35-43	
Vertebrae to anal-fin origin (VAO)	4		3-6	
Vertebrae to dorsal-fin origin (VDO)	13		11-13	
Anal-fin rays to dorsal-fin origin (ARDO)	18		17-22	
Total vertebrae	109			
Morphometric	N = 1 (mm)	(/HL)	N = 14 Range	Mean
Total length (TL)	93.5		57-148	
Head length (HL)	12.6		8-21.9	
Horizontal eye diameter (ED)	2.7	0.214	0.19-0.26	0.22
Bony interorbital distance (BI)	2.1	0.166	0.14-0.18	0.15
Head depth (HD)	6.5	0.515	0.43-0.55	0.51
Predorsal length (PDL)	23	1.825	1.47-1.85	1.65
Preanal length (PAL)	11.5	0.912	0.95-1.14	1.02
Snout length (SNL)	2.2	0.174	0.17-0.23	0.19
Pectoral length (PL)	6.6	0.522	0.41-0.53	0.47
Upper jaw length (UJL)	6.4	0.507	0.46-0.54	0.51
Lower jaw length (LJL)	7.2	0.571	0.49-0.56	0.54
Body depth (BD)	6.7	0.531	0.51-0.66	0.58

Table I. - Morphometric and meristic characters of MNHN 1992-0914 and *C. dubius*. All morphometric data of *C. dubius* are expressed as a ratio to HL (except TL and HL).

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