

Comparison of Meristic and Morphometric Characteristics of Two Species of *Eupleurogrammus muticus* (Gray, 1831) and *E. glossodon* (Bleeker, 1860) (Perciformes: Trichiuridae)

Perbandingan Karakter Meristik dan Morfometrik Dua Jenis Ikan Lajur Kepala Kecil *Eupleurogrammus muticus* (Gray, 1831) and *E. glossodon* (Bleeker, 1860) (Perciformes: Trichiuridae)

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Abstrak

Penelitian ini bertujuan untuk membandingkan karakter meristik dan morfometrik antara dua jenis ikan lajur kepala kecil *Eupleurogrammus muticus* (Gray, 1831) dan *E. glossodon* (Bleeker, 1860) berdasarkan holotype, syntype dan non-type spesimen. Hasil penelitian ini menunjukkan bahwa kedua jenis ikan lajur tersebut dapat dibedakan berdasarkan karakter berturut-turut sebagai berikut: sirip dada pada jenis *E. muticus* terletak pada posisi sejajar dengan sirip punggung yang ke-17 dan 18 sedangkan pada *E. glossodon* terletak pada posisi yang ke-11 sampai 13; sirip dubur terletak pada posisi sejajar sirip punggung ke-40 sampai 42 (vs. 33-36); jumlah keseluruhan jari-jari sirip punggung sebanyak 142-148 buah (vs. 131-134); precaudal vertebrae 41-42 buah (vs. 32-36); jumlah total vertebrae 193-194 buah (vs. 160-163); kisaran panjang caudal peduncle 49% - 66% dari panjang tubuh depan dubur (vs. 29-37%). Karakter-karakter tersebut sangat penting untuk dijadikan sebagai dasar pembeda antara kedua jenis ikan lajur kepala kecil, *E. muticus* dan *E. glossodon*.

Key words: *Eupleurogrammus*, trichiuridae, perbandingan, meristik, morfometrik

Diterima: 14 Desember 2005, disetujui: 13 Maret 2006

Introduction

The Trichiuridae is a family composed of 10 genera and 37 species of mostly benthopelagic marine fishes collectively known as hairtail (Burhanuddin and Iwatsuki, 2003a). The family is mainly confined to tropical and temperate seas from 50 to 1500 (rarely 2000) m depth (Nakamura and Parin, 1993).

The fishes of *Eupleurogrammus* (family of Trichiuridae) have often been misidentified because of their similar overall body appearance and coloration, resulting in these

being considered as “variable species” by many researchers. *E. glossodon* was originally proposed by Gray (1931) as *Trichiurus intermedius*. Tucker (1956) redefined the species of the genus *Eupleurogrammus*, including a key, and regarded that *T. intermedius* is a synonym of *E. intermedius*. Subsequently, Nakamura and Parin (1993) reported two valid species, *E. muticus* (Gray, 1831) and *E. glossodon* (Bleeker, 1860) but failed to consider a wide range of material and the type specimen of *Eupleurogrammus*. Accordingly, further taxonomic identity of the species is needed. The present paper is

aimed to describe the *Eupleurogrammus muticus*, including comparison with *E. glossodon* and notes variation in both species.

Materials and Methods

Methods for measurements and counts generally followed Nakamura and Parin (1993) and Burhanuddin *et al.*, (2002). In addition to these, some modifications were made following Burhanuddin and Iwatsuki (2003b). Measurements were made to the nearest 0.1 mm, proportional measurements being rounded off to the first decimal place. Radiographs were taken of all specimens, so as to aid meristic and vertebral formula counts. Institutional codes follow Leviton *et al.*, (1985).

Material examined

Eupleurogrammus muticus, BMNH (British Museum [Natural History]) 1955.5.13.2, 426 mm total length, from Indian waters (*Holotype*); IOCAS (Institute Oceanology Chinese Academy of Science, China) 569111, 54622, 56976, 569058, 54621, 54741 (6 specimens), 252-395 mm total length, from South China Sea (*non type*). *E. glossodon*, BMNH 1860.3.1976 (*Syntypes*, 3 specimens), 273-336 mm total length, from Chusan, East India; BMNH 1962.5.4.1, 374 mm total length, Panaikullam, Srilanka; BMNH 1961.9.12.2, 268 mm total length, Waltair, Bengal Bay East cost of India; URM-P (University of Ryukyus, Okinawa, Japan) 28955, 28957, 28959 (3 Specimens), 449-455 mm total length, Gulf of Thailand (*non type*). Proportional measurement are expressed as percentages of standard length (SL) and Preanal length (PL).

Results and Discussion

Eupleurogrammus muticus (Gray, 1831)

English name: smallhead hairtail

Description

Dorsal fin elements 142-148; anal fin reduced to minute spinules buried in skin, situated below 40th to 42nd dorsal-fin soft rays;

pectoral fin I, 10-11; pelvic fins present, but reduced to small scale-like process, situated below 17th to 18th dorsal-fin soft rays; predorsal fin short [mean 24% range (22-25%) of PL]; eye large [6% (5-6%) of PL]; Snout short [12% (11-13%) of PL]; caudal peduncle long [49-66% (55%) of PL].

Counts and proportional measurements of the holotype and other specimen of *E. muticus* are shown in Table 1. Body elongated and remarkably compressed, ribbon like tapering to a point; mouth large with a dermal process at tip of each jaw; posteroventral margin of gill cover convex; eye small, its diameter about 6 times in head length, located far from dorsal profile of head; 2 or 3 fangs in upper jaw; no fangs on tip of lower jaw; series of sharp compressed lateral teeth in both jaws; caudal fin absent, posterior part of body tapering to a point; lateral line running almost straight along mid body or slightly nearer ventral contour than dorsal contour.

Color

In preserved specimens, head and body yellowish-tan; all fin membranes hyaline; dusky dermal process on tip of each jaw clearly remained.

Habitat and Distribution

Benthopelagic, mostly in continental shelf, but often comes near surface at night. Feeds on a wide variety of small coastal fishes, squids and crustaceans. Distributed in Indo West Pacific including the Gulf of Thailand, India, Srilanka, Malaysia, Singapore, Indonesia, China and southern Korean Peninsula (Nakamura and Parin, 1993).

Comparison with other species

In overall appearance and color pattern *Eupleurogrammus muticus* is most similar to *Eupleurogrammus glossodon*. A comparison of selected counts of both species is shown in Table 1 and 2. Nakamura and Parin (1993) used the fangs on tip of lower jaws as one of the key characters for distinguish between the two species (absence of fangs on tip of lower jaw in *E. muticus* vs. a pair of fang on tip of lower jaw in *E. glossodon*). However, some specimens of *E. muticus* have been found to

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have a pair of fang in tip of lower jaw. Additionally, Nakamura and Parin (1993) noted differences in base of anterior margin of pectoral fins (a small pale black in *E. muticus* vs. black blotch in *E. glossodon*). However,

some specimens of *E. muticus* also have black blotch in base of anterior margin of pectoral fins. Therefore, the above-mentioned characters are not always reliable for species discrimination.

Table 1. Comparative counts and proportional measurements expressed as percentages of preanal length of the holotype, syntypes and non-type specimens of *Eupleurogrammus muticus* and *E. glossodon*

	<i>Eupleurogrammus muticus</i>		<i>Eupleurogrammus glossodon</i>	
	Holotype BMNH 1955.5.13.2 545	Non-types n= 6 230-332	Syntypes MBNH 1860.3.19.76 n= 3 437	Non-types n= 6 353-540
Counts:				
Dorsal fin elements	147	142-148	134-131	131-134
Dorsal fin ray opposite first anal spine	41 st	40 th - 42 nd	35 th - 36 th	33 rd - 36 th
Pectoral fin rays	I, 10	I, 10-11	I, 9	I, 9-10
Precaudal vertebrae	42	41-42	34-36	32-36
Caudal vertebrae	150	149-153	126-127	126-131
Total vertebrae	191	191-194	160-162	160-163
Measurements:				
Dorsal fin base length	281	281-300 (289)	271-279 (274)	271-287 (279)
Precaudal peduncle length	301	300-314 (306)	292-295 (293)	286-296 (292)
Caudal peduncle length	59	49-66 (55)	29-36 (33)	29-37 (36)
Head length	36	33-36 (34)	33-35 (34)	
Snout length	12	11-13 (12)	12-13 (12)	12-15 (13)
Postorbital length	damaged	16-17 (16)	15-17 (16)	15-16 (16)
Preopercle length	damaged	5-7 (7)	7-10 (9)	6-19 (8)
Upper jaw length	12	11-13 (12)	12-13 (12)	12-14 (13)
Body depth at pectoral fin base	21	18-21 (20)	16-18 (17)	16-22 (19)
Body depth at anus	24	21-24 (22)	17-20 (19)	17-23 (21)
Body width at pectoral fin base	5	5-7 (6)	4-6 (6)	4-7 (6)
Predorsal length	24	22-25 (24)	22-24 (23)	22-25 (24)
Longest fin ray length	damaged	10-11(10)	damaged	9-12 (11)
Bony interorbital width	5	5-6(5)	5 (5)	4-6 (5)
Dermal eye opening	6	5-6 (6)	5-6 (5)	5-6 (5)
Suborbital width	4	4-5 (4)	4 (4)	4-5 (5)

Table 2. Frequency distribution of vertebral counts based on radiographs of *Eupleurogrammus*

Precaudal vertebrae												
	32	33	34	35	36	37	38	39	41	42		
<i>E. muticus</i> (n= 7)	-	-	-	-	-	-	-	-	2	5		
<i>E. glossodon</i> (n = 9)	3	-	2	1	3	-	-	-	-	-		
Caudal vertebrae												
	126	127	128	129	130	131	--	149	150	151	152	153
<i>E. muticus</i> (n= 7)	-	-	-	-	-	-		1	1	-	2	3
<i>E. glossodon</i> (n = 9)	2	3	2	1	-	1		-	-	-	-	-
Total vertebrae												
	160	161	162	163	--	191	192	193	194			
<i>E. muticus</i> (n= 7)	-	-	-	-		2	2	-	3			
<i>E. glossodon</i> (n = 9)	3	-	4	2		-	-	-	-			

Notwithstanding, *E. muticus* can be easily distinguished from *E. glossodon* by having ventral fins situated below 17th -18th dorsal fin ray (vs. 11th -13th in *E. glossodon*); dorsal fin elements 142-148 (vs. 131-134); dorsal fin rays opposite first anal spine 40th – 42nd (vs. 33rd - 36th); precaudal vertebrae 41-42 (vs. 32-36) total vertebrae 193-194 (vs. 160-163); caudal peduncle length range 49-66% of PL (vs. 29-37% of PL) (Table 1 and 2). Those characters above are considered important to distinguish features between the species.

Acknowledgement

We are very grateful to the following persons and institutions for specimen loans: C. Li and J. Liu (IOCAS, Institute Oceanology Chinese Academy of Science, China); A.M. Hine, J. Macline, and P. Campbell (BMNH; British Museum [Natural History]); T. Yoshino (URM-P; University of Ryukyus, Okinawa, Japan). This study was supported in part by grant awarded to the first author by the Rotary Yoneyama Scholarship (Tokyo, Japan) and Ito Foundation for the Advancement of Ichthyology (Tokyo, Japan).

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