

A new record of the mudskipper *Parapocryptes serperaster* (Oxudercinae: Gobiidae) from Peninsular Malaysia

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ABSTRACT One specimen of the mudskipper *Parapocryptes serperaster* (Valenciennes, 1837), a new record for Peninsular Malaysia, was captured at Sungai Sembilang, Jeram, Selangor. Its morphological features and habitat utilization are discussed. The preliminary feeding habit is described based on the gut contents.

ABSTRAK Satu spesimen ikan tembakul *Parapocryptes serperaster* (Valenciennes, 1837), satu rekod yang baru bagi Semenanjung Malaysia, telah dijumpai di Sungai Sembilang, Jeram, Selangor. Ciri-ciri morfologi dan penggunaan habitatnya dibincangkan. Data awal bagi tabiat pemakanan berdasarkan kandungan perut diuraikan.

(Mudskippers, new record, morphology, stomach contents, mudflats)

INTRODUCTION

Species of the gobiid fishes that are commonly known as mudskippers abound on the mudflats of Selangor coast. Mudskippers are common on tidal mudflats throughout tropical Africa, Asia and Australia [1]. Tytler and Vaughan [2] described the mudskippers resident in the soft bottom muddy shores of intertidal areas, estuarine habitats and mangrove swamps of the Indo-Pacific region. Thirty-five species belonging to 10 genera have been identified in the mangrove areas of the world [1,3]. From that report, 8 genera and 11 species have been recorded in the coastal areas of Peninsular Malaysia.

Mudskipper of the genus *Parapocryptes* Bleeker, 1874 (Family Gobiidae) was represented by two species, *Parapocryptes rictuotus* (Valenciennes) described in 1837 and *Parapocryptes serperaster* (Richardson) in 1845. According to Murdy [1], the distribution of *Parapocryptes serperaster* is from the Ganges Delta eastward to China and Indonesia. Koumans [4] reported specimens from the Andaman Island and Sri Lanka and Takita

[5] reported the occurrence of this species from Tebing Tinggi Island, Sumatra but its habitat remains unknown.

MATERIALS AND METHOD

The material examined is 000515-KMZ/NYR deposited at the Institute of Biological Sciences of the University of Malaya. The species were identified by using the key of Koumans [4] and Murdy [1]. We followed Murdy [1] for the nomenclature.

The surface of the fish was superficially dried with a piece of cloth before the measurements and counts taken. The body weight was determined by using Mettler Toledo digital balance nearest 0.1g. All the measurements are straight-line distances made with dial reading calipers and recorded to the nearest tenth of a millimeter. Methods of measurements follow Murdy [1]. All fish length were given total length (TL – measured from snout to the end of the longest caudal ray) and standard length (SL – measured from snout to the central base of caudal fin). Body depth is measured as vertical distance from anal spine base to second dorsal

of opercular membrane. Head depth is measured vertically from posterior margin of preopercle downward to ventral contour of head. Length of dorsal (D1 & D2) or anal fin base was measured from the base of the first ray to the last fin ray in a straight line. Lengths of pectoral or pelvic fins was measured from the farthest tip of the paired fin including filaments, if any, to the extreme base of the fin. The proportions of all body measurements were expressed as a percentage of SL. The numbers of spines and rays of dorsal (D1 & D2), anal and pectoral fins were counted. Murdy [1] reported that the first elements of D2 and anal fins may be soft spine or segmented ray and the counts of these rays do not differentiate between spines and rays. The last two rays of these fins may be close together and counted as a single element. The pectoral fin elements were counted both on the left and right sides.

The type of scales was determined externally by using light microscope. Scale counts were taken in longitudinal series and transverse series. The counts of longitudinal scale series started from the dorso-posterior attachment of the opercular membrane, continued on a postero-ventral diagonal to the tip of the pectoral fins, and then in a straight line along the midline of the body to the posterior edge of the hypural plate. Transverse scale counts indicated diagonally the number of scale rows between the origin of second dorsal fin to the anal fin base. Other diagnosis of morphological features and coloration of fresh and dead specimens were also recorded.

For microscopic preliminary examination of stomach contents, we followed the procedure by Colombini [6]. The stomach contents were examined under a light binocular microscope and the items identified. Only the stomach contents were considered because the intestines underestimated the number of prey ingested especially the worms and insect larvae. Counts were based on almost intact prey items, but when this was not possible, fragmented body parts of the prey were used.

RESULTS AND DISCUSSION

Diagnosis

Table 1 shows the comparison of some morphometrics and counts with type specimens (taken from [1]). The body of this species is elongated. The scales are small, cycloid and arranged in lateral series. Lower eyelid absent and eyes located at or below the dorsal profile of head. The teeth of the lower jaw are pointed. D1 and D2 are not contiguous and the height is moderate. D1 and the first spine of D2 spines are not branched while the rest of D2 spines are branched. Caudal fins are not greatly lengthened. Pelvic fins are united by a strong frenum, forming a round disk.

Colouration

In this freshly collected specimen the colour was grayish brown on the dorsal part, pale on the flanks and white on the ventral part. There were five brown bars on the dorsum but only at D1 was the origin prominent. The spines of D1 and the elements of D2 were translucent. Anal fins, pelvic fins, caudal fins and pectoral fins were yellowish hyaline.

Once preserved, the specimen turned pale gray on the dorsal part, flanks were pale and whitish on the ventral part. The dark brown bars remained. All the fin colors became translucent except for the pelvic fin which was white.

Habitat

Parapocryptes serperaster is a new record from Peninsular Malaysia. Takita [5] found this species in Sumatra but its habitat was not described. Murdy [1] reported that this species were distributed from Ganges Delta eastward to China including Indonesia.

This species inhabits the riverine areas of Sungai Sembilang, Jeram where the substrates are very soft and muddy. The dark gray and fine mud that drained from the river was deposited at this estuary, making the area one of the richest with benthic invertebrates. The water is brackish with a salinity of less than 1 ppt during the low tide. The vegetation around the river bank was very patchy due to tree cutting. The main vegetation here were *Avicennia alba* and *Sonneratia alba*.

This fish was caught by a trawl net in which also contained *Boleophthalmus boddarti* and *Pseudapocryptes elongatus*. Other mudskipper species found in the same area are *Periophthalmodon schlosseri*, *Boleophthalmus boddarti* and *Periophthalmus chrysopilos*. Other available fauna common in this area, are the fiddler (*Uca* sp) and other crabs.

Stomach content

The stomach analyses (Fig.1) revealed an omnivorous diet which comprised phytoplanktons, especially diatoms, and plant detritus with smaller quantities of animal component (Nematoda and Polychaeta).

Table 1. Morphometrics (expressed as percentage of standard length) and counts of several fin rays of *Parapocryptes serperaster* compared with data obtained by Murdy (1989). Values in brackets are the mean of measurements or counts.

| | Present study | Murdy (1989) |
|---------------------------|---------------|------------------|
| Measurements (mm) | | |
| Standard length (SL) | 90.4 | - |
| Body depth | 15.7 | 7.2-9.2 (8.1) |
| Body width | 12.2 | - |
| Head length | 18.9 | 18.3-23.9 (20.2) |
| Head width | 13.5 | 11.9 (9.9-14.4) |
| Head depth | 13.1 | 9.8-14.4 (11.8) |
| D1 base length | 13.6 | 11.8-14.5 (12.6) |
| D2 base length | 43.6 | 43.5-51.3 (47.8) |
| Anal fin base length | 42.6 | 42.1-47.9 (45.1) |
| Pectoral fin length | 16.7 | 12.9-16.7 (15.3) |
| Pelvic fin length | 14.6 | 12.2-18.2 (14.7) |
| Counts | | |
| D1 spine | 6 | 6 (6) |
| D2 elements | 26 | 26-29 (27.6) |
| Anal fin elements | 27 | 25-29 (27.1) |
| Pectoral fin rays (right) | 21 | 20-21 (20.6) |
| Pectoral fin rays (left) | 21 | 20-21 (20.5) |
| Longitudinal scales | 69 | 62-81 (71.9) |
| TRDB | 21 | 17-23 (21.3) |

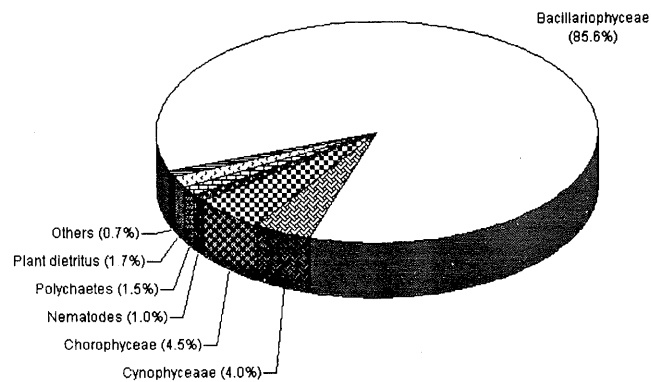


Figure 1. Percentage abundance of stomach contents in single specimen *Parapocryptes serperaster*.

Acknowledgments This study was partially funded by PJP SF113/2000A for the first author and R&D 09-02-03-0674 for the second author. We are grateful to Dr A. Sasekumar for reviewing the manuscript.

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