

Status of family Labridae, special reference with diversity and taxonomical characters from Puducherry coastal waters, Coromandel Coast

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ABSTRACT: This study examines the diversity and taxonomical characters of wrasse fishes (family Labridae) on Pondicherry coastal water. In Puducherry all the Labridae species holds high commercial value and highly consumed by the local population. Totally six species were recorded. Out of this three species belongs *Iniistius* genus , one species recored as a *Bodianus* genus, *Cymolutes* genus and *Halichoeres* genus. *Iniistius* and *Halichoeres* species are common in all landing centre. *Cymolutes praetextatus* and *Iniistius melanopus* recored only in Pillaichavadi landing center. *Bodianus neilli* species recored in Nallavadu and Perikalapet landing centre.

KEYWORDS: coral fish, Coromandel Coast, keli mukku meen, Labridae, Puducherry fish landing, wrasse

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I. INTRODUCTION

The fishes of the family Labridae, commonly known as wrasses, hogfishes, razorfishes and tuskfishes, comprise 71 genera and 521 species , the majority of which are brightly coloured reef dwellers (Gomon & Randall, 1984; Nelson, 1994). The members of the family Labridae are of great interest for ichthyologists due to their body shape and diverse colouration patterns. The Labridae has recognized as a remarkably varied family. Labridae is the third largest fish family and it is the second largest fish family living in marine environment. Structural modifications in the skull, in specific the jaws and dentition, has allowed the wrasses to exploit a wide variety of prey from zooplankton and crustacean ectoparasites to fishes and thick-shelled bivalves and gastropods (Westneat et al. 2005). Wrasses are ample in temperate coastal ecosystems and denote important predators that feed on a variety of invertebrates as well as being forage fish for other fish and birds (Helfman et al., 2009). The Labridae are also one of the most morphologically and ecologically diverse families in terms of size, shape, and colour. Family Labroids play an important role in maintaining the health of coral reef fish communities and acting as a cleaner fish. This study was conducted to know the taxonomical identification and diversity of Labridae (wrasse) species from Puducherry coastal waters.

II. MATERIAL AND METHODS

Puducherry region is situated on the coromandel cast between 11° 45' and 12°03'N latitudes and 79°37' and 79°53'E longitudes with an area of 293 km² and the coastal shoreline area assessed 24 km. The present study was carried out for a period of 18 months from November 2019 to April 2021 in four landing centres (Periyakalpet (12° 2' 13"N: 79° 51' 58" E) , Pillaichavadi (12° 0' 31"N: 79° 51' 31"E) , Veerampattinam (11° 53' 31"N: 79° 49' 37" E) and Nallavadu (11° 51' 32"N: 79° 48' 56"E)) to study the Labridae family diversity in Puducherry coastal waters. Samples were collected and observed every three days once all landing centres. Labridae family fishes were identified using FAO sheets.

III. RESULT AND DISCUSSION

Totally six species were recorded from Labridae family. Out of this three species belongs *Iniistius* genus , one species recored as a *Bodianus* genus, *Cymolutes* genus and *Halichoeres* genus. *Iniistius cyanifrons* , *Iniistius bimaculatus* and *Halichoeres zeylonicus* were recorded in all landing centre. *Cymolutes praetextatus*

and *Iniistius melanopus* recored only in Pillaichavadi landing center. *Bodianus neilli* species recored in Nallavadu and Perikalapet landing centre (Table 1).

Table: 1 shows the diversity species from the landing centre

Species list	Nallavadu	Veerampattinam	Pillaichavadi	Periyakalpet
<i>Bodianus neilli</i>	+			+
<i>Cymolutes praetextatus</i>			+	
<i>Iniistius melanopus</i>			+	
<i>Iniistius cyanifrons</i>	+	+	+	+
<i>Iniistius bimaculatus</i>	+	+	+	+
<i>Halichoeres zeylonicus</i>	+	+	+	+

3.1 *Iniistius cyanifrons* (Valenciennes, 1840)

A species of *Iniistius* with two rows of minute scales present below and behind the eyes. The first two spines of dorsal fin separate but connected by membrane with rest of the fin. Body uniform, anal and caudal fin with wavy blue lines (Fig:A).



Fig: A *Iniistius cyanifrons*

3.2 *Iniistius bimaculatus* (Rupell, 1829)

Body is deep and very compressed. Dorsal side of head is strongly lower in the front of eye, anterior edge of the snout is thin and very steep. There is a pair of slender, long incurved, and slightly out flaring canine teeth anteriorly in each jaw. Dorsal side of snout is nearly vertical, last pored scales on caudal fin base is more pointed than previous pored scales, largest scales are on the side of chest and side of body largest scales are present (Fig.B). Dorsal fin starts from posterior to vertical at hind edge of eye, first three dorsal spines are flexible and 2-3 times longer than the third spine, membrane between the second and third spines notched is half the length of the third spine, scales are cycloid, very thin and membranous lateral line scales with a single horizontal tubule ending in a posterior pore; Caudal fin is small and asymmetrically rounded. Males are pale grey, the scale edges are a little darker, with a blackish spot on mid side below the tip of pectoral fin, spot covers 3 scales in the fifth and sixth rows from top of the body, have a pale yellowish blotch preceding the black spot, a medium blue line at the front of the head, pectoral fin base white, dorsal fin dusky with pale orange thin line along the base of the soft length, bluish line, posterior part of dorsal fin with a series of rows of pale orange spot, anal fin is translucent white with a series of yellowish dashes or elongate spots on fin, mid to upper portion of the caudal fin has a series of narrow vertical, irregular orange stripes. Females lack the black spot on sides.



Fig . B *Iniistius bimaculatus*

3.3 *Halichoeres zeylonicus* (Bennett, 1833)

Totally nine dorsal spines and eleven dorsal soft rays are present. Three anal spines and eleven anal soft rays are present. In Females dorsal side light bluish grey ,ventral side white in colour, with a narrow orange stripe running from the top of the snout to the upper base of the caudal fin (where it may contain a blackish spot). In Males blue-green on head side and anterior portions of the body with irregular pink band and spots; their orange-yellow lateral stripe blue-edged, often with narrow extensions. A blue-edged spot at the upper portion of the pectoral fin base. Two or more similar blue-edged spots just anterior of the caudal peduncle above the lateral stripe (Fig.C).



Fig . C *Halichoeres zeylonicus*

3.4 *Iniistius melanopus* (Bleeker, 1857)

Recognised by the thin but distinct blue line from the front of the eye to end of mouth and large individuals by the black elongate spot at the end of the anal fin. Presences of nine dorsal spines and twelve dorsal soft rays. Three anal spines and twelve anal soft rays are present. Occurs on upper part of sand and mud banks, usually on reef flat areas, just before sloping down in depths from 7 m down to about 15 m. Found in spread out groups, often with *X. pentadactylus* in the same general area, but this species grows much larger and dominates. Dives into sand to sleep safely at night or to hide when alarmed. But the biggest males swim over large areas and move away quickly when approached by divers rather than diving into the bottom (Fig.D).



Fig: D *Iniistius melanopus*

3.5 *Bodianus neilli* (Day, 1867)

Upper jaw with prominent anterior canines of similar size. First canine directed anteroventrally in small specimens, angled much more strongly anteriorly in larger. second canine directed mostly ventrally, angled slightly laterally in larger individuals. Cheek scales reaching forward beyond corner of mouth on upper jaw, to below anterior nostril in some specimens. Few teeth on dental ridge, especially anteriorly, teeth more and more pronounced posteriorly in progressively larger individuals. Single enlarged posterior canine usually present, directed strongly anteriorly, directed slightly ventrally and angled laterally in very large specimens. first canine directed anterodorsally and slightly mesially, angled strongly anteriorly in large specimens; second directed anterodorsally, the tip often curving dorsally, second canine rarely angled laterally. Caudal fin mostly truncate, very slightly rounded at most; dorsal side most rays longer than middle rays in large specimens. Pelvic fin somewhat variable in length, tip reaching just to anus.

Body slightly dusky above level of lower jaw and anterior to diagonal between base of last dorsal-fin spine and ventral side of pectoral-fin base. Slightly darker dusky line directed posteriorly from corner of mouth. Body rose red on dorsal portion of sides anterior to segmented dorsal-fin rays and on head above level of lower jaw. Ventral side of head, chest and abdomen are white in colour. sides and anterior portion of caudal peduncle yellow in colour. Anterior $\frac{3}{4}$ of dorsal-fin red, posterior $\frac{1}{4}$ yellow. Anal fin yellow with large red blotch between first and fifth segmented rays. Posterior portion of caudal peduncle and caudal fin red. Broad red band on fleshy pectoral-fin base. Pelvic fins yellow with streaks of red. Yellow and white portions of fins and body suffused with red in large individuals (Fig.E).

3.6 *Cymolutes praetextatus*, (Quoy & Gaimard, 1834)

Cymolutes praetextatus is a pale coloured wrasse which has steep contour to its head. A black spot is present on the dorso-posterior side in the caudal peduncle of the female, an ocellated black spot above the tip of the pectoral fin of the male, and a thin black line in the outer part of the first interspinous membrane of the dorsal fin of both sexes. Dorsal spines (total): 9 - 10; Dorsal soft rays (total): 12-13; Anal spines: 2-3; Anal soft rays: 11 - 12(Myers, R.F., 1999). The genus *Cymolutes* is easily separated from the other genera of the sub family Xyrichtyinae by having 72-93 scales in longitudinal series while the other genera have 26 scales; no scales on the head; and 12 branched caudal rays. A pair of slender canine teeth extended at front of jaws, the lower pair suitably fit to inside and overlapping lips when mouth closed.

The flanks are marked with indistinct whitish bars and there is a white stripe along its back which sits above a wide, yellowish or darker coloured stripe, although this may not be present. Series of orange coloured stripes runs throughout the dorsal fin. The males and many of the females of praetextatus have a series of orange to pink bars in life on the posterior half of the body. Has a broad yellow lateral stripe. (Myers, R.F., 1999). Margin of dorsal and anal fins deep pink; upper and lower edges of caudal fin pink (Fig:F).



Fig:E *Bodianus neilli*



Fig: F *Cymolutes praetextatus*

Bellwood and Wainwright (2001) reported that the distribution of labrids across the Great Barrier Reef is affected by water movement. Khalaf and Kochzius (2002) reported 38 species of labrid fishes on 5 coral reef sites and seagrass-dominated Al-Mamlah Bay at the Jordanian coast in the northern Gulf of Aqaba. In the present study six species of Labridae family were recorded. The genus *Iniiistius* is known to have about 75 species worldwide (Froese & Pauly 2013). From Indian waters the species was reported earlier from Tuticorin (Froese & Pauly, 2012), Chennai (CMFRI, 2009), Vizhinjam and Mangalore (Saravanan et al., 2011). Moreover there is no record of occurrence of this species on the north east coast of India. But in the present study *Iniiistius* sp., and *Halichoeres* sp were recorded in all the landing centres. Alakesh Pradhan & Bijay Kali Mahapatra (2017) reported as a first time *Iniiistius bimaculatus* (Perciformes: Labridae) from Digha, North-East Coast of India.

In Puducherry all the Labridae species holds high commercial value and highly consumed by the local population. The cost of the fish is as equal to other commercially important fishes. All Labridae species are evenly called by a vernacular name as keli mukku meen (parrot nose fish). This all species are recorded throughout the year. So the present study pin pointing the taxonomical characters and confirming the diversity of Labridae species in Pondicherry coastal water.

Conflict of interest

There is no conflict to disclose

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