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Original Research Paper

New Record of *Muricanthus kuesterianus* (Tapparone-Canefri, 1875) Family: Muricidae, from Palk Strait, Southeast Coast of India

C. Stella and C. Raghunathan*
Department of Oceanography and Coastal Area Studies, Alagappa University, Thondi-623 409, Ramnad district, Tamil Nadu, India
*Zoological Survey of India, Andaman and Nicobar Regional Station, Haddo, Port Blair-744 102, Andaman & Nicobar Islands, India

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ABSTRACT

The present study reported the occurrence of *Muricanthus kuesterianus* in the Palk Strait region of southeast coast of India as a first hand record. The detailed description of this species has been given with the comparison of its close resembled species *Chicoreus virgineus*.

INTRODUCTION

Muricidae, the largest and varied taxonomic family among marine gastropods has small to large predatory sea snails in the Order Neogastropoda. At least 1,000 species of muricids under numerous subfamilies are known. Many muricids have unusual shells which are considered attractive by shell collectors. The spire and body whorl of the muricids are often ornamental with knobs, tubercules, ribbing or spines. Muricids have episodic growth which means that the shell grows in spurts, remaining in the same size for a while before rapidly growing to the next size stage resulting in a series of varices on each whorl. Most species of muricids are carnivorous, feeding on other gastropods, bivalves and barnacles.

In March 2007, during the course of faunistic surveys along the Palk Strait region of southeast coast of India (Fig. 1), the authors collected a number of specimens of muricids which are having close resemblance to *Chicoreus virgineus.* On comparison, these gastropods were differed from *Chicoreus virgineus* as they have axial rib, strong varix, heavy node, number of varices, deep narrow spire, aperture shape, size and thickness, edge of outer lip and spiral sculpture. The detailed taxonomic studies on this species revealed that this species is *Muricanthus kuesterianus* (Tapporone-Canefri 1875), recorded for the first time in Palk Strait as well as east coast of India. However, Subba Rao (2003) described this species and reported its distribution along the coastal waters of Gujarat and Maharastra.

Systematic

Muricanthus kuesterianus

Genus: *Muricanthus* (Swainson 1840)
Species: *kuesterianus* (Tapparone-Canefri 1875)

Synonym: *Chicoreus virgineus*: Subrahmanyam et al. (1952), Menon et al. (1961)

Chicoreus virgineus

Genus: *Chicoreus* (Montfort 1810)
Species**:** *virgineus* (Roading 1798)
Type species by original designation: *Murex ramosus*, Linn 1758

Locality: Palk Strait, Lat. 11°30'N and Long. 79'46 E (Fig. 1).

Distribution: Palk Strait, 10 to 15 Fathoms

DESCRIPTION OF SHELL

***Muricanthus kuesterianus* (Tapparone Canefri 1875):** The shell of *Muricanthus kuesterianus* shows similar pattern throughout the study with little variations (Fig. 2). The following description is mainly based on noneroded shells of younger specimen, where the shell sculpture could be seen clearly. The shell of *Muricanthus kuesterianus* is thinner and fusiform. Spire moderately high with suture impressed. The shell up to 110 mm in length with 2 protoconch whorls and up to 6 teleoconch whorls. Protoconch whorls smooth. First and second teleoconch whorls consist of 10 to 14 axial ribs. Third, fourth and fifth whorls form varices. The sixth teleoconch body whorls have 3 varices with one open spine at the shoulder. Each varix of last body whorl with 3 to 5 medium size spines, adapical spine longest, other spines decreasing in length abapically. Intervaricial axial sculpture of the body whorls consist of 3 nodes.

Short intermediate spine is between shoulder spine and second abapical spine. Spiral sculpture consists of major and minor cords and spiral threads. The major and minor cords on the varices bear number of small spines. There is prominent weak varice present on the outer surface on the outer lip. Inside the outer lip there is a deep narrow notch present. Outer lip weak denticulate with labral tooth. Aperture broadly ovate and large. Colour of the aperture is white. Siphonal canal broad and short with 2 open spines. Columellar lip smooth and adherent. Shell colour ranges from white to light chocolate brown, most commonly white with scattered brown fleets. These are arranged in diffuse spiral bands.

The operculum is large, thin, calcareous and pauscipiral, brown and white in colour. The length of the operculum is 25 mm and the width is 18 mm in an animal with a shell length of 107 mm.

***Chicoreus virgineus* (Roading 1798):** The shells of *Chicoreus virgineus* show a similar pattern throughout the study with little variation (Fig. 3). The following description is mainly based on non eroded shell of younger specimen, where the shell sculpture could be seen clearly. The shell of *Chicoreus virgineus* is heavy and fusiform. Spire low with simple suture. The shell up to 107 mm in length with 2 protoconch whorls and up to 6 teleoconch whorls. Protoconch whorls rounded and sculptured with axial ribs. First and second teleoconch whorls with 8 to 10 axial ribs. Third, fourth and fifth whorl with axial ribs and forming varices. The sixth teleoconch body whorls with 3 varices. Each varix of last whorl with 4 to 5 medium size spines, adapical spine longest, other spines decreasing in length abapically. Intervaricial axial sculpture consists of 3 heavy nodes.

Short intermediate spine between shoulder spine and second abapical spine. Spiral sculpture consists of numerous minor and major cords and prominent spiral threads. There is a strong varice present on outer surface on the outer lip. Inside the outer lip no deep notch is present. Outer lip strongly denticulate and with large labral tooth. Aperture round and small. Colour of the aperture pinkish

white. Siphonal canal long and narrow with 2 or 3 closed spines. Columellar lip smooth. Shell colour ranges from white to light chocolate brown, most commonly white with scattered brown fleets, which are arranged in diffuse spiral bands.

The operculum is large, thin, calcareous and pauscipiral, brown and white in colour. The length of the operculum is 25 mm and the width is 18 mm in an animal with a shell length of 107 mm.

REMARKS

Muricanthus kuesterianus has resemblance to *Chicoreus virgineus,* and it can be differentiated by its shape and distinct sculpture. *Muricanthus kuesterianus* differ from *Chicoreus virgineus* in the following characteristics of arial ribs, weak varice, deep narrow space, shape of the aperture and edge of

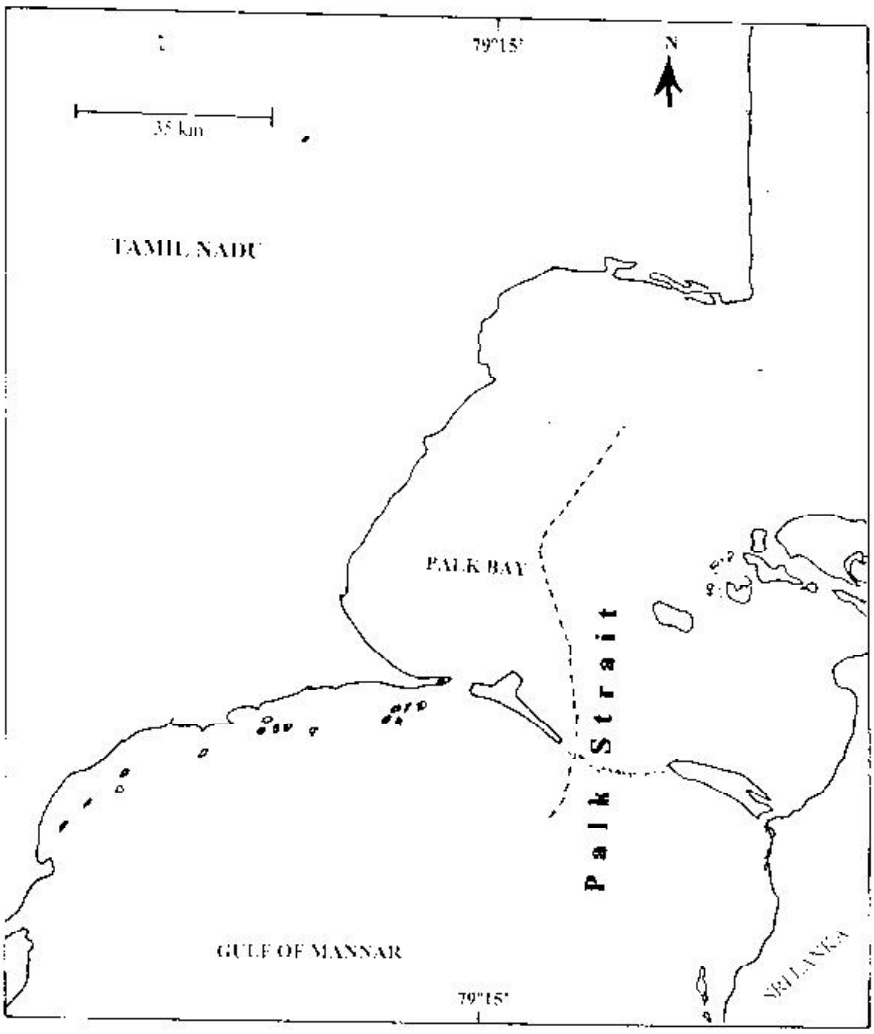

Fig. 1: Map showing the study area.

the outer lip (Table 1).

1. The shell of *Chicoreus virgineus* is fusiform and heavy, whereas in *Muricanthus kuesterianus* it is fusiform and thinner.
2. More than 8 to 10 axial ribs are present in *Chicoreus virgineus* whereas in *Muricanthus kuesterianus* 10 to 14 axial ribs are present on the first and second teleoconch whorls.
3. Intervaricial axial sculpture on the body whorl consists of 3 heavy nodes in *Chicoreus virgineus,* whereas in *Muricanthus kuesterianus* it consists of 3 nodes.
4. A strong varix is present on the edge of the outer surface of the outer lip in *Chicoreus virgineus* whereas in *Muricanthus Kuesterianus* a weak varix may be present.
5. In *Chicoreus virgineus* there is no notch present, whereas in *Muricanthus kuesterianus* a deep narrow space is present inside the outer lip.
6. There is an apparent difference in the relationship between aperture shape and size. *Chicoreus virgineus* has round and small aperture, whereas in *Muricanthus Kuesterianus* there is broadly ovate and large aperture.

In the present study the species of *Muricanthus kuesterianus* is a new record of Palk Strait, south-east coast of India. From the above observation, the species of *Muricanthus kuesterianus* has resemblance to *Chicoreus virgineus,* and it can be differentiated by its shape and distinct sculpture. The present study is also in conformity with the statement of Subba Rao (2003), and the species is distributed in Gujarat, Maharashtra and Arabian Sea.

DISCUSSION

The shells of the two species studied are distinctly differing in their shape, sculpture, thickness and size. According to Kitching et al. (1966) the shell weight is influenced by shape as well as the thickness. The difference in shell thickness may be attributed to the variation in their environmental niche and the availability of food. There is also an apparent difference in the relationship between shell size and aperture size. The population may be attributed to differential feeding rates. The present study is also in conformity with the statement of Kitching & Lockwood (1974).

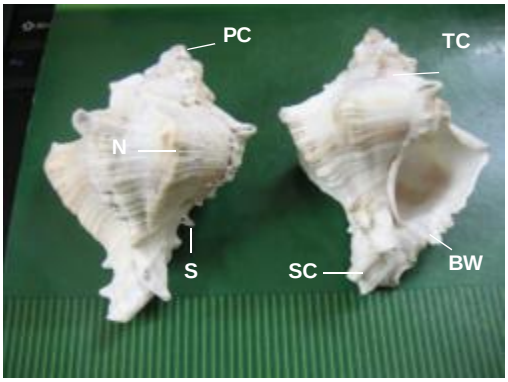

Fig 2: *Muricanthus kuesterianus.*

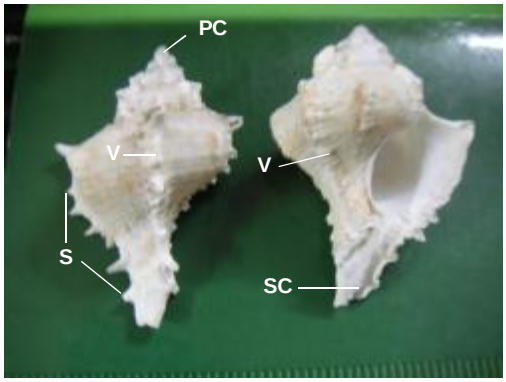

Fig 3:*Chicoreus virgineus.*

PC-Protoconch, TC-Teleoconch, BW-Body whorl, SC-Siphonal canal, S-Spine, N-Nodes, V-Varices

Table 1: Comparison of morphological characters of *Chicoreus virgineus* and *Muricanthus kuesterianus*

Shell Characters	*Chicoreus virgineus*	*Muricanthus kuesterianus*
Shell shape and thickness	Fusiform and heavy	Fusiform and thinner
Spire	Low	Moderately high
Length	107 mm	110 mm
Protoconch	2	2
Teleoconch	6	6
Number and axial ribs	8 to 10	10 to 14
Number and varice	3 heavy	3 weak
Each varices with number of spine on the body whorl	4 to 5	3 to 5 spines
Intervaricial axial sculpture	3 heavy node	3 node
Spiral sculpture	Major cords	Major cords
	Minor cords	Minor cords
	Spiral cords	Spiral cords
Edge of the outer lip	Outer lip with strong varice	With weak varice
Inside the outer lip	No Notch	Deep narrow notch is present
Shape and size of the aperture	Round and small	Broadly ovate and large
Colour of the aperture	Pinkish white	White
Siphonal canal	Long and narrow with 2 or 3 closed spines.	Broad and short with 2 open spine
Columellar lip	Smooth	Smooth

There is a remarkable variation between the two species is the varices and teeth. A strong thick varix is formed at the edge of the outer lip of the body whorls at regular intervals. Each varix represents a resting period in the growth of the shell. The intervarices of the shell represent active periods of the shell deposition. However, the duration of shell deposition or the time taken for the shell growth was not noticed. The present observation is in conformity with the observation of Carriker (1957) on *Murex brevifrons* and *Murex fulvescens*. Spight & Lyons (1974) had well documented about shell deposition of resting period by the muricids. Each successive varix has more elaborate teeth. The earliest teeth are flat and have sword like structure. Each successive varix has more elaborate teeth. The earliest teeth are flat and have sword like structure. The spines and varices may be resorbed by the mantle (Fretter & Graham 1962). Snails used their labial teeth on several occasions during feeding. Teeth have been used as wedges to open shell of prey (Macginite & Nettie 1949). It is worth studying on specific period and the time taken for shell deposition on muricids in tropical waters in future in order to have a clear-cut picture of a shell growth and shell deposition.

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