

SHORT COMMUNICATION

A NEW FOSSIL SEA CUCUMBER (ECHINODERMATA: HOLOTHUROIDEA) *MESOTHURIA KARACHIENSIS* FROM CRETACEOUS AGE, FROM KARACHI, SINDH, PAKISTAN

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ABSTRACT

A fossil sea cucumber, *Mesothuria karachiensis* sp. nov. is being reported from Karachi, Pakistan. It is from the Cretaceous age, about 200 million years old.

KEYWORDS

New species; Sea cucumber; Echinodermata; Holothuroidea; Karachi, Sindh, Pakistan.

1. INTRODUCTION

Early history of fossil holothurians is poorly understood, as only 914 fossil species have so far been recorded (Gilliland, 1993). In some cases, only body-wall ossicles have been reported (Mostler, 1972). It described one body fossil from Triassic sediments of Europe (Charbonneau, 1981). A synallacted ossicle species has been described from Middle Devonian of Poland (Boczarowski, 2001).

Present study of a new fossil sea cucumber species is first of its kind from this region. There are no earlier reports of sea cucumbers from South Asia.

2. MATERIALS AND METHOD

The fossil was obtained from coarse sand of a dry riverbed in the suburbs of Karachi. It is partly embedded in limestone. The fossil was washed, cleaned, and photographed for detailed study.

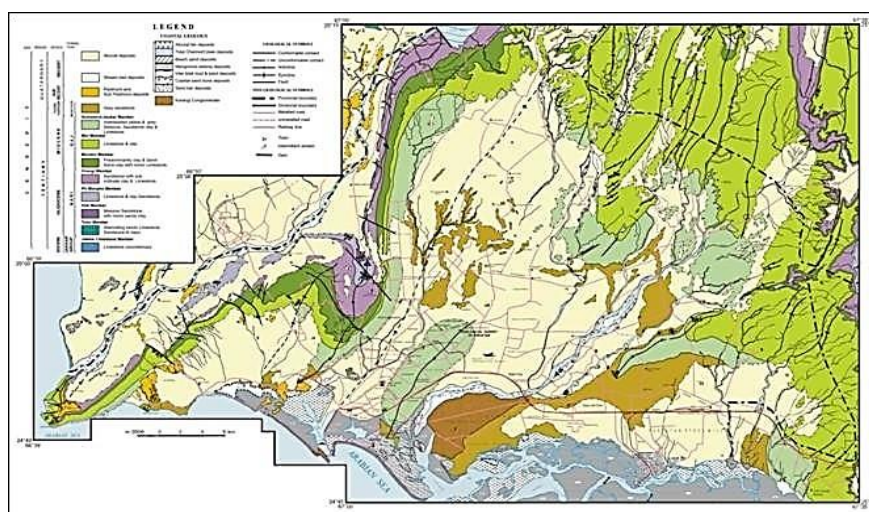
3. RESULTS

3.1 Geo - Setting

In the Indus basin area of Sindh, two flooding cycles at sea level have been recognized (Wakefield and Montil, 2002). These rocks are considered to be deposits of Eocene and Oligocene age and are highly fossiliferous. Soil profile studies at various points in these hills have indicated the presence of Calcite, Gypsum, Quartz granules, and red clay deposits. Limestone deposits are incursions of flint nodules on surface (Blazgi and Crenachi, 1988). Palynological and sedimentation studies indicate a shallow marine paleoenvironment in Indus plain area (Frederikson, 1994; Mohan, 1982; Usmani, 1983; Usmani et al., 2002; Wakefield and Montil, 2002) during the Tertiary period.

The Karachi area of Sindh is characterized by sedimentary rocks from the late Tertiary period, unconformably overlying Quaternary sediments. It sits within the Kirthar fold belt and is influenced by active fault systems, related to the collision of the Arabian plate with the Indian plate. Two seasonal rivers, Lyari and Malir drain the area with their channels influenced by fault activity (Zaidi and Muhammad, 1988). They briefly described the geomorphology of Karachi (Hamid et al., 2012).

Authors discussed the structural geometry of the southern part of Karachi Arc (Figure. 1) (Naimatullah and Imran, 2012)



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3.2 Morphology of Sea Cucumber

The fossil sea cucumber is small, about 9 mm in length and the width is 6.2 mm in the middle (Figure. 2). The body tapers and is obtuse at both ends.

It is not possible to identify the anterior and posterior end of the body. Similarly, no setae or bristles are visible, (Figure. 3) as are found in living specimens.



Figure 2: New Fossil, Sea Cucumber



Figure 3: Close up of the same above Fossil

4. DISCUSSION

Reported the oldest sea cucumber fossil, *Aspidochrotid* (Reich, 2010). They published a compendium of fossil holothurians (Seposki, 2002). Latter system of class Holothuria was devised (Smirnov, 2012). Sea cucumber fossils recorded earlier are whole body fossils or in the form of body wall ossicles (Reich, 2010; Cherbonnier, 1978). Fossil sea cucumber in the present study is a whole-body fossil, partly embedded in limestone matrix.

A new species of fossil holothurian *Tetrairga* has been described earlier from northern Iran (Wuchiapingian and Rahimi Yazd, 1976). Paleobiology and biostratigraphy of Ordovician chitinozoa and systematics and skeletal morphology of holothurians have been dealt with in some detail (Grahn, 1982; Gelliland, 1973). In present specimen from Pakistan, no bristles or setae are visible, as such delicate structures are difficult for preservation.

They have identified 8 species belonging to 7 orders of Cretaceous Holothuridia from Agrio Formation, Neuquen basin of Argentina (Cranus et al., 2019). Our knowledge of fossil Echinoderms can be enhanced, if more fossils of this kind are studied. It has recently presented a list of echinoid fossil genera from Pakistan (Jafri, 2025).

SYSTEMATIC PALEONTOLOGY

Ph: Echinodermata

Cl: Holothuroidea

Ord: Holothuridae

Fam: Mesothuridae

Gen: Mesothuria

Sp: karachiensis

Holotype will be deposited in PMNH, Islamabad for registration.

ETYMOLOGY

The species name refers to the locality where the fossil was found.

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