Indian Journal of Geo Marine Sciences
Vol. 54 (02), February 2025, pp. 103-106
DOI: 10.56042/xndt9m19

Short Communication

A note on the occurrence of Ovalbone cuttlefish, *Acanthosepion ellipticum* (Hoyle, 1885) off Ratnagiri, central west coast of India

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Received 5 December 2024; revised 02 February 2025

The Ovalbone cuttlefish, *Acanthosepion ellipticum* (Hoyle, 1885), was recorded for the first time from the Ratnagiri waters, Maharashtra. This study provides significant baseline data on the distribution and occurrence of the species along the central west coast of India. The findings highlight the importance of systematic monitoring and further studies on cephalopod diversity in the regional context to fill existing knowledge gaps.

[**Keywords**: Arabian Sea, Biodiversity, Cephalopods, Cuttlefish, Ratnagiri]

Introduction

Cuttlefishes, belonging to the family Sepiidae, are important components of coastal ecosystems and support commercial fisheries globally[1]. In Indian waters, over 80 species of cephalopods are reported[2], with significant contributions to fisheries as bycatch in trawl operations[3-5]. However, limited studies have focused on cephalopod diversity, particularly along the Maharashtra coast. Almost the entire catch of cuttlefish is obtained as bycatch in trawl fishing along the Indian coast[5]. Several studies have been conducted on cuttlefishes along the Indian waters, with significant contributions by Nair *et al.*[6], Rao *et al.*[7], Silas[8], Silas *et al.*[9], and Mohamed *et al.*[10]. Sundaram & Khan[11] provided insights into the exploitation of juvenile cephalopods, including cuttlefishes, from the Arabian Sea and the Bay of Bengal. Sundaram[12] discussed the various uses of cephalopods, including cuttlefishes, while Sundaram & Mane[5] highlighted diversity and biology details of this group. Several authors have also documented the cuttlefish fishery in Maharashtra, with recent studies by Sundaram[13], Ramkumar *et al.*[14], and Sugumar *et al.*[4]. A review of the existing literature reveals a lack of studies on the diversity of cuttlefishes from the Ratnagiri waters.

A new entrant into the cuttlefish fishery at Mirkarwada fishing harbour, Ratnagiri, Maharashtra, is *Acanthosepion ellipticum* (Hoyle, 1885). It is commonly known as 'Ovalbone cuttlefish' and locally all cuttlefishes are known as 'goti makhul'. The present study gives the first occurrence information of *A. ellipticum* from Ratnagiri, Maharashtra, the central part of the west coast of India. This record marks a significant range extension for the species and contributes valuable data for monitoring marine biodiversity, particularly in the context of changing oceanographic conditions in the northern Indian Ocean.

Materials and Methods

A single specimen of *A. ellipticum* was collected from Mirkarwada Fishing Jetty, Ratnagiri (16°59'57" N, 73°16'48" E) on 3rd December 2024. The specimen was obtained from a hook-and-line catch. After collection, a photograph (Fig. 1) was taken, and morphometrics were recorded. Morphometric measurements were taken using a measuring scale and

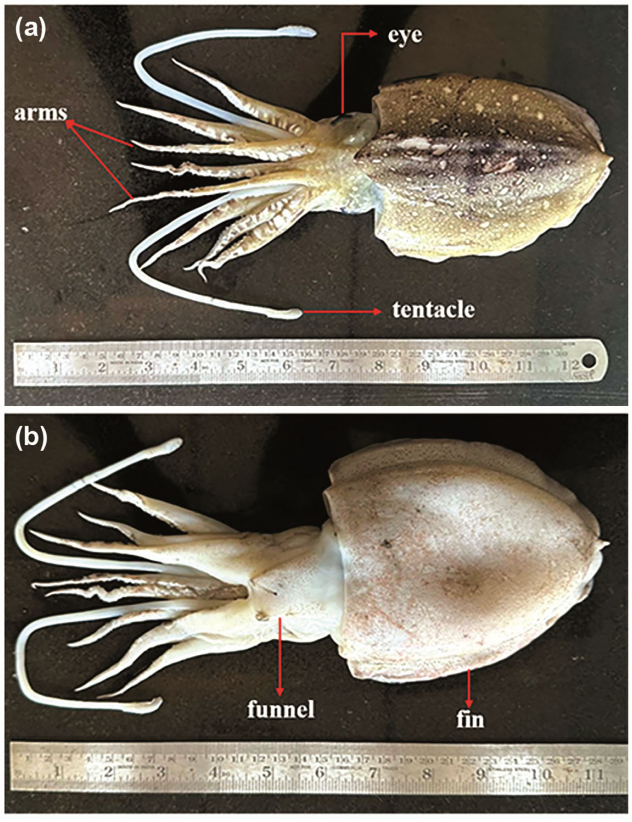

Fig. 1 — Anatomy of *A. ellipticum*: (a) Dorsal, and (b) Ventral view

digital callipers to the nearest 0.1 mm. It was followed by preservation of the specimen in 10 % formaldehyde. The collected specimen was subsequently identified as *A. ellipticum* (Hoyle, 1885), following the standardised literature, Reid *et al*.[15] and Hoyle[16]. The collected specimen is deposited in the museum of the Department of Fisheries Biology, College of Fisheries, Ratnagiri, Maharashtra, India (Accession No: MFB/COFRTN/134).

Results

Systematics

Class: Cephalopoda Cuvier, 1795
Order: Decapodiformes Haeckel, 1866
Family: Sepiidae Leach, 1817
Genus: *Acanthosepion* Rochebrune, 1884
Acanthosepion ellipticum (Hoyle, 1885), Ovalbone cuttlefish

Distinguishing characters: Mantle of *A. ellipticum* is oval, with the dorsal anterior margin triangular. Arm lengths sub-equal, arm suckers tetra serial. Club sucker-bearing surface flattened, with 12 minute suckers in transverse rows. Swimming keel of the club extends well proximal to the carpus. Cuttlebone oval and very angular 'V-shaped' anteriorly, bluntly rounded posteriorly (Fig. 2). Hectocotylus present on the left ventral arm, consisting of 7 rows of normal-sized suckers proximally, 7 rows of reduced suckers medially, and normal-sized suckers distally. Suckers in the dorsal series of the hectocotylus are smaller than the ventral reduced suckers, which are only slightly smaller than the usual arm suckers. Oral surface of modified region normal and fleshy. Spine short, pointed, and curves dorsally, with no keel present.

Fig. 2 — Cuttlebone of *A. ellipticum*: (a) Dorsal, and (b) Ventral view

Colour: The body is generally light to dark brown with mottled or speckled patterns on the mantle, aiding in camouflage. The arms and fins are typically light to reddish-brown, while the club and suckers are slightly paler, occasionally translucent. Cuttlebone is creamy white.

Geographical distribution: The species is distributed in the Indo-Pacific from north-western Australia, the Indo-Malay Archipelago, the Andaman Sea, the South China Sea, Vietnam and India[4,8,17]. In India, it has been reported at Veraval, Mumbai, and Cochin (Fig. 3).

Discussion

Acanthosepion ellipticum is frequently misidentified as *Sepia esculenta*, a species with a broad global distribution. In *S. esculenta* (commonly referred to as the golden cuttlefish), the inner cone ledge is characteristically thick and directed anteroventrally, and the dorsal surface exhibits distinct lateral striping. In contrast, *A. ellipticum* can be readily distinguished from *Sepia aculeata* based on the unique shape of its cuttlebone and the presence of conspicuous markings across all arms. The maximum dorsal mantle length reported for this species is 175 mm[(ref. 17)]. Specimens collected from Cochin waters using trawl nets reached lengths of 129 mm in males and 119 mm in females[9]. In Veraval waters, individuals up to 149 mm have been documented[18], whereas a maximum of 118 mm has been reported from Mumbai waters[11]. Additionally, Sivasubramanian[3] recorded a maximum mantle length of 130 mm from the Bay of Bengal. During the present study in Ratnagiri waters, the specimen measured 120 mm in mantle length. The total length of collected specimens ranged between 160 mm and 215 mm, while the species is known to attain a maximum total length of up to 250 mm[(ref. 19)].

Dietary observations indicate that this species predominantly feeds on prawns. According to Silas *et al.*[9], penaeid prawns form the major component of its diet in Cochin waters. Additional prey items identified through stomach content analysis include fishes, *Acetes* sp., crabs, and stomatopods.

The occurrence of *A. ellipticum* in this region underscores its ecological richness and suggests its contribution to trophic energy transfer within the marine food web. In the present study, only a single specimen was collected from a hook-and-line catch along the Ratnagiri coast. As no systematic survey was undertaken, additional targeted sampling is

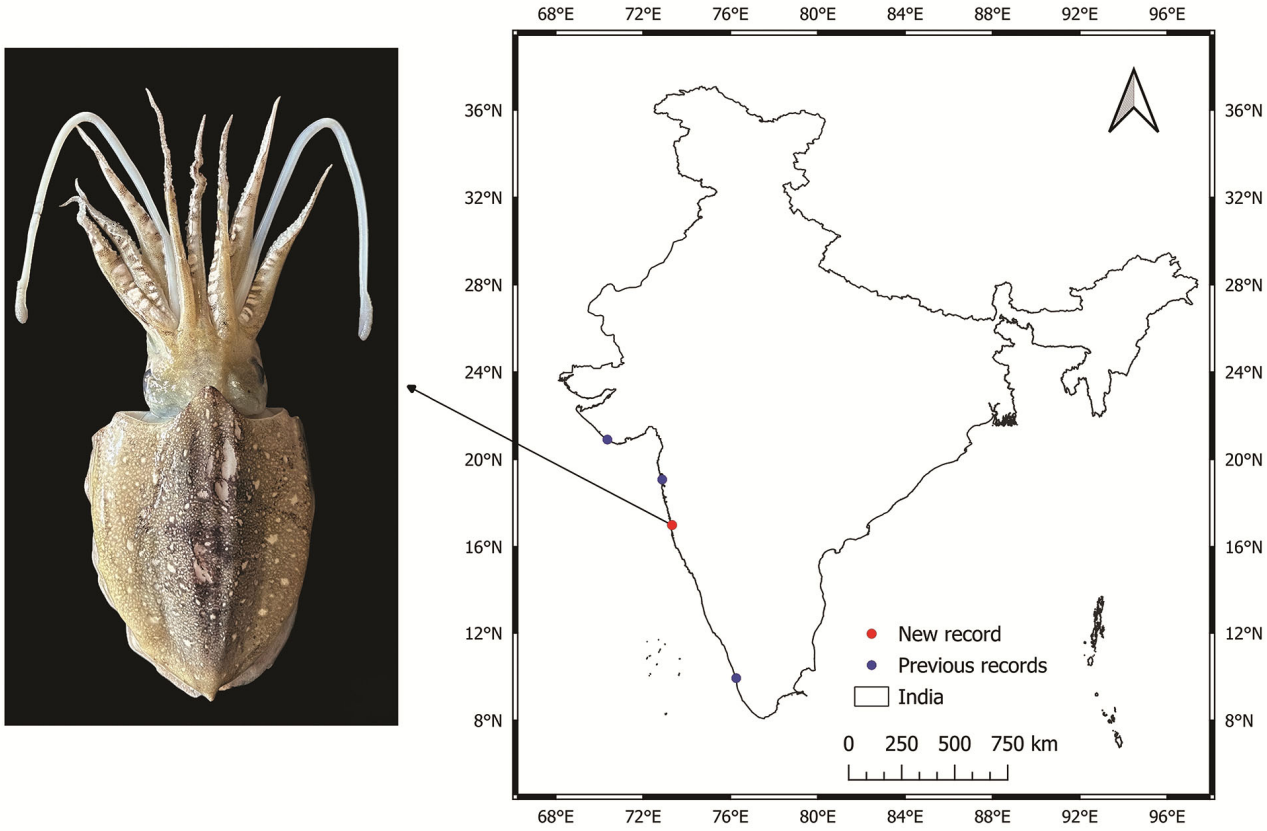

Fig. 3 — Map showing the recorded distribution of A. ellipticum (Hoyle, 1885) along the Indian coast

required to better understand its population status and frequency of occurrence in the area.

The presence of *A. ellipticum* off Ratnagiri may be associated with ecological shifts such as monsoonal upwelling, enhanced primary productivity, or the expansion of suitable habitats[20]. Cephalopods are known for their pronounced migratory behaviour; therefore, focused investigations during this period are necessary to evaluate its population dynamics and potential contribution to local fisheries[11]. Although *A. ellipticum* is not currently a commercially targeted species in Indian fisheries, its occurrence could act as an indicator of changing marine biodiversity. Such range extensions can provide valuable insights into regional ecosystem transformations and support adaptive approaches to fisheries management.

Acknowledgements

The authors extend gratitude to the authorities of the College of Fisheries, Ratnagiri, for providing the necessary facilities.

Conflict of Interest

There is no competing or conflict of interest for this research.

Ethical Statement

This study follows all ethical research practices.

Author Contributions

MS: Specimen collection, identification and preparation of the manuscript; SM: Identification, improvisation of manuscript and confirmation; and KP: Preparation of the manuscript, reviewing and editing

References

1 Roper C F E, Sweeney M J & Nauen C E, FAO species catalogue, Vol 3, Cephalopods of the world. An annotated and illustrated catalogue of species of interest to fisheries, *FAO Fish Synop*, 125 (3) (1984) p. 277.

2 Silas E G, Cephalopoda of the west coast of India collected during the cruises of the research vessel 'VARUNA', with catalogue of the species known from the Indian Ocean, *Proc Symp Mollusca, Mar Biol Assoc India*, Pt. I, (1968) 277–359.

3 Sivasubramaniam K, The cephalopod in the Bay, *Bay of Bengal News*, (1991) 17–21.

4 Sugumar R, Sundaram S, Jaiswar A K, Ranjith L, Chakraborty S K, *et al.*, An evaluation of economic impact on juvenile landings of cephalopods in Mumbai waters, northwest coast of India, *Curr World Environ*, 10 (3) (2015) 1004–1010.

5 Sundaram S & Mane S, Species diversity and basic biology of cuttlefishes from Maharashtra waters, northwest coast of India, *Int J Life Sci*, 6 (3) (2018) 799–806.

6 Nair K P, Srinath M, Meiyappan M M, Rao K S, Sarvesan R, *et al.*, Stock assessment of the Pharaoh cuttlefish *Sepia pharaonis* Ehrenberg, *Indian J Fish*, 40 (1&2) (1993) 85–94.

7 Rao K S, Srinath M, Meiyappan M M, Nair K P, Sarvesan R, *et al.*, Stock assessment of the needle cuttlefish *Sepia aculeata* Orbigny, *Indian J Fish*, 40 (1&2) (1993) 95–103.

8 Silas E G, Cephalopod Resources: Perspective, Priorities and targets for 2000 A.D., In: *Cephalopod bionomics, fisheries and resources of the Exclusive Economic Zone of India*, edited by Silas E G, *Bull Cent Mar Fish Res Inst*, 37 (1985) 172–183.

9 Silas E G, Sarvesan R, Nair K P, Sastry Y A, Srinivasan P V, *et al.*, Some aspects of the biology of Cuttlefishes, In: *Cephalopod bionomics, fisheries and resources of the Exclusive Economic Zone of India*, edited by Silas E G, *Bull Cent Mar Fish Res Inst*, 37 (1985) 49–70.

10 Mohamed K S, Joseph M, Alloycious P S, Sasikumar G, Laxmilatha P, *et al.*, Quantitative and qualitative assessment of exploitation of juvenile cephalopods from the Arabian Sea and Bay of Bengal and determination of minimum legal sizes, *J Mar Biol Assoc India*, 51 (1) (2009) 98–106.

11 Sundaram S & Khan M Z, Record of cuttlefish, *Sepia elliptica* (Hoyle, 1885) off Maharashtra coast, *Mar Fish Infor Serv, T & E Ser*, 204 (2010) 14–16.

12 Sundaram S, The various uses of Cephalopods, *Fish Chimes*, 29 (8) (2009) 23–25.

13 Sundaram S, Cephalopod fishery of Maharashtra state, *Mar Fish Infor Serv, T & E Ser*, 208 (2011) 6–9.

14 Ramkumar S, Purushottama G B, Sundaram S & Kudupkar N V, Status and exploitation of molluscan fishery resources of Maharashtra, In: *Fisheries resources of Konkan region – Utilization and management*, edited by Chakraborty S K & Lakra W S, (Central Institute of Fisheries Education, Mumbai), 2013, pp. 65–72.

15 Reid A, Jereb P & Roper C F E, Family Sepiidae, In: *Cephalopods of the world. An annotated and illustrated catalogue of cephalopod species known to date. Chambered nautiluses and sepioids*, edited by Jereb P & Roper C F E, *FAO Spec Cat Fish Purp*, No 4, Vol 1, (FAO, Rome) 2005, pp. 57-152.

16 Hoyle W E, Diagnoses of new species of Cephalopoda collected during the cruise of H.M.S. Challenger, II: The Decapoda, *Ann Mag Nat Hist, Ser 5*, 16 (1885) 181–203.

17 Jereb P & Roper C F E (Eds), *Cephalopods of the world. An annotated and illustrated catalogue of cephalopod species known to date*, Chambered nautiluses and sepioids (Nautilidae, Sepiidae, Sepiolidae, Sepiadariidae, Idiosepiidae and Spirulidae), *FAO Spec Cat Fish Purp*, No 4, Vol 1, (FAO, Rome), 2005, pp. 262.

18 Kasim H M, Population dynamics of the cuttlefish *Sepia elliptica* Hoyle, 1885 in Saurashtra waters, *J Mar Biol Assoc India*, 35 (1&2) (1993) 80–86.

19 Froese R & Pauly D (Eds.), *FishBase*, World Wide Web electronic publication, Available online at: http://www.fishbase.org; (Accessed on December 2024).

20 Vivekanandan E, Srinath M & Kuriakose S, Fishing the marine food web along the Indian coast, *Fish Res*, 72 (2–3) (2005) 241–252.