

## New records of Blue Ring Octopus, *Hapalochlaena nierstraszi*, Adam 1938, from the bay of Bengal along the Chennai coast, Tamil Nadu, India

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Three specimens of *Hapalochlaena nierstraszi* were recorded first time at Kasimedu Fisheries Harbour, Chennai. It was caught by Trawl net gear at a depth of 20-30 m in Bay of Bengal (Latitudes 5°N & 22°N and longitudes 80°E & 100°E) along the Chennai Coast. A literature review on the distribution of this species revealed that this is the first report of *Hapalochlaena nierstraszi* from the Bay of Bengal along Chennai coast of India. A note on the morphological features of this specimen is detailed in this paper.

[**Keywords:** Blue Ring Octopus, *Hapalochlaena nierstraszi*, new records, Bay of Bengal along Chennai coast of India.]

### Introduction

The blue-ringed octopuses include three (or perhaps four) octopus species that live in tide pools and coral reefs in the Pacific and Indian Oceans (Ellis, 1991), from Japan to Australia (mainly around southern New South Wales and South Australia). They are recognized as some of the world's most venomous marine animals. Despite their small size and relatively docile nature, they can prove a danger to humans. They can be recognized by their characteristic blue and black rings and yellowish skin. When the octopus is agitated, the brown patches darken dramatically and iridescent blue rings or clumps of rings appear and pulsate within the maculae. Typically 50-60 blue rings cover the dorsal and lateral surfaces of the mantle. They hunt small crabs, hermit crabs, and shrimp, and may bite attackers, including humans, if provoked. The Blue-Ringed Octopus is found in a few areas around the world. They are mainly present in the Pacific Ocean and East Indian Ocean. Yet their habitat spans all the way from Japan to Australia so they have quite a presence. *Octopus nierstraszi*, Adam, 1938 is synonym of *H. nierstraszi*. There are at least ten species of tiny blue-ringed octopuses, which, ironically for their size, are the most deadly of all cephalopods but only four have been formally identified and all are inhabitants of Asian-pacific waters: Greater Blue-ringed Octopus (*Hapalochlaena lunulata*), Lesser Blue-ringed Octopus or Southern Blue-ringed Octopus (*Hapalochlaena maculosa*),

Blue-lined Octopus (*Hapalochlaena fasciata*) and *Hapalochlaena nierstraszi*. The common name comes from the bright blue rings that appear when they are alarmed or attacked. The present findings showed the first new record from the Bay of Bengal along Chennai coast of India. Materials and Methods:

During our study on marine molluscs from the Bay of Bengal (Latitudes 5°N & 22°N and longitudes 80°E & 100°E) along Chennai coast of India, we have recorded *H. nierstraszi* in trawl net catches which was uncommon for this coast until now and this species were caught approximately 50 km southeast off Chennai i.e., Bay of Bengal at a depth range of 20 to 30 m by using trawl net (Fig. 1).



Fig. 1 — Map showing the sampling site (Madras Fisheries Harbour, Chennai with red circle) along the Bay of Bengal along off Chennai, Southeast coast of India

## Result and Discussion

### Material Examined

*Hapalochlaena nierstraszi* (3 specimens; Trawl net; Kasimedu Fisheries Harbour, at a depth of 20-30 m in Bay of Bengal along the Chennai Coast, Latitudes 5°N & 22°N and longitudes 80°E & 100°E).

The specimens were identified as *Hapalochlaena nierstraszi* and were consistent with the specimens examined by Marine Invertebrates Sciences Museum Victoria, GPO Box 666, Melbourne VIC 3001, Australia. For photographic documentation and detailed study, digital Sony 16 Megapixel camera was used. The collected specimens were preserved in 70% (v/v) ethanol and deposited and deposited in Zoological Survey of India, MBRC, 130, Santhome High Road, Chennai-28, TN, India. (Accession Number: ZSI/MBRC/M-1701, Dated: 27/08/2015).

### Systematic:

Order: Octopoda,

Suborder: Incirrata,

Subfamily: Octopodoidea,

Family: Octopodidae,

Genus: *Hapalochlaena*,

Species: *nierstraszi*, Adam 1938 (Figure 2-3).

### Measurement & Body Description

The Blue ring octopus total body length and width varied from 82-165 mm, 5.5-18 g respectively. (Figure 2-3 & Table 1). Blue ringed octopuses are one

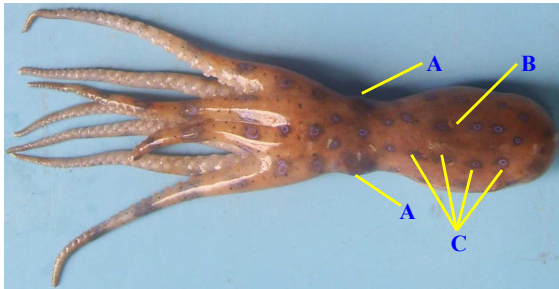


Fig. 2 — Blue Ring Octopus, *Hapalochlaena nierstraszi*, Adam 1938, (Dorsal view) from the Bay of Bengal along the Chennai Coast, Tamil Nadu, India (A-Eyes, B-Mantle, C-Blue Rings).

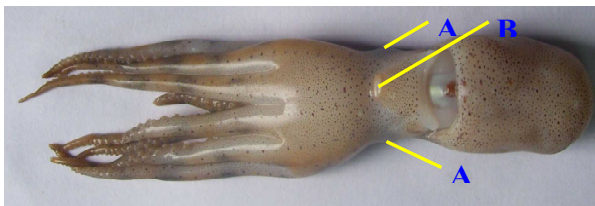


Fig. 3 — Ventral side of Blue Ring Octopus, *Hapalochlaena nierstraszi*, Adam 1938, from the Bay of Bengal along the Chennai Coast, Tamil Nadu, India (A-Eyes, B-Siphon (Funnel)).

of the jewels of the ocean, with vivid blue rings visible over the body when hunting, courting or alarmed. They grow 12 to 20 cm (5 to 8 inches) long but are considered as one of the world's most venomous marine animals. When the octopus is agitated, the brown patches darken dramatically, and iridescent blue rings or clumps of rings appear and pulsate within the maculae. Typically 50-60 blue rings cover the dorsal and lateral surfaces of the mantle. (Figure 2 to 3).

Although many Octopodidae are used for biomedical research, behavioral research, and as food source, *Hapalochlaena sp.* are too small and too dangerous for much of these uses. Medical and psychological researches are interested in the tetrodotoxin neurotoxin found in its venom for its aphrodisiac effect and its ability to block voltage-sodium channels so action potential in neurons is inhibited or reduced. They also have value as an unusual luxury item. As strange as it may seem, a *H. lunulata* individual was sold for \$4000 at an auction in Sidney, Australia<sup>1, 2, & 3</sup>. Powerful venom acts on the victim's voluntary muscles, paralyzing the muscles required for body movement and breathing. Artificial respiration is necessary to maintain life. The poison gradually wears off after 24 hrs, apparently leaving no side effects<sup>4, 5 & 6</sup>.

The blue-ringed octopus's genus *Hapalochlaena sp.* are distributed in the Pacific and Indian Oceans, from Japan to Australia (mainly around southern New South Wales and South Australia)<sup>7</sup>. Present findings showed the first new record from the Bay of Bengal along Chennai coast of India. The Bioprospecting of marine molluscs is very important field of marine drug discovery, the marine molluscs like Blue ring octopus, sea slug and sea hare are known to possess anti-cancer (Soblidotin, Synthadotin/ILX651, Cemadotin, and Kahalalide F), anti-tumor and anti-viral compounds which are very useful in the pharmacological industry<sup>8 & 9</sup>.

Table 1 — Length and weight of Blue ring octopus, *Hapalochlaena nierstraszi* landed at Kasimedu Fishing Harbour, Chennai on 12-08-2012.

Serial No.	Length, (mm)	Weight, (g)	Date of Collection	Place of Collection
1	82	5.5	12/8/2012	Kasimedu Fishing Harbour, Chennai
2	93	6	22/8/2012	Kasimedu Fishing Harbour, Chennai
3	165	18	13/9/2012	Kasimedu Fishing Harbour, Chennai

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