

First record of *Halophila ovalis* in the Haripur creek, East Coast of India

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Present study reports the first record of occurrence of a seagrass *Halophila ovalis*, family- Hydrocharitaceae and class-Liliopsida in the Haripur creek of the southern coast of Odisha. It was suggested that the shallow water region of this tidal creek provided a conducive environment for colonization of this particular sea grass species. This study also describes the morphological and habitat characteristics of the sea grass.

[**Key words:** First record, *Halophila ovalis*, Haripur creek, East coast of India]

Introduction

Haripur creek is seven kilometer long tidal influenced backwater system that originates from Haripur Village and connected to the Bay of Bengal at Gopalpur. It receives marine water from Bay of Bengal through a narrow inlet. Though it is an important back water system of south odisha coast, the studies related to ecology and biodiversity is not deliberated well so far. Odisha has a coastline of 480 km and good potential of sea grass meadow, is exclusively seen in Chilika lake¹. They possess magnificent proliferation of sea grass density and diversity. There are five species of sea grass reported from this coastal ecosystem such as *Halodule uninervis*, *H. pinifolia*, *Halophila beccarii*, *H. ovata*, *H. ovalis*¹. In India, frequently occurring species of sea grass are those of *H. beccarii*, *H. ovata*, *H. ovalis*, *Cymodocea rotundata*, *C. serrulata*, *Thalassia hemprichii*, *Halodule uninervis* and *H. pinifolia*. The sea grass *Halophila ovalis* is the major representative among all and it is growing rapidly having high turn-over and wide ecological range. Hence, considered as a pioneering species in the coastal marine habitat^{2,3,4}.

Materials and Methods

Samples were collected from Haripur creek near Gopalpur, on 3rd June 2012 from latitude 19° 15' 56.32" N and longitude 84° 55' 0.75" E (Fig.1). The collected specimen was identified by adopting

the standard procedure^{2, 3}. Further identification of this species was carried out by following the authentic taxonomic and morphological studies^{4,5,6}.

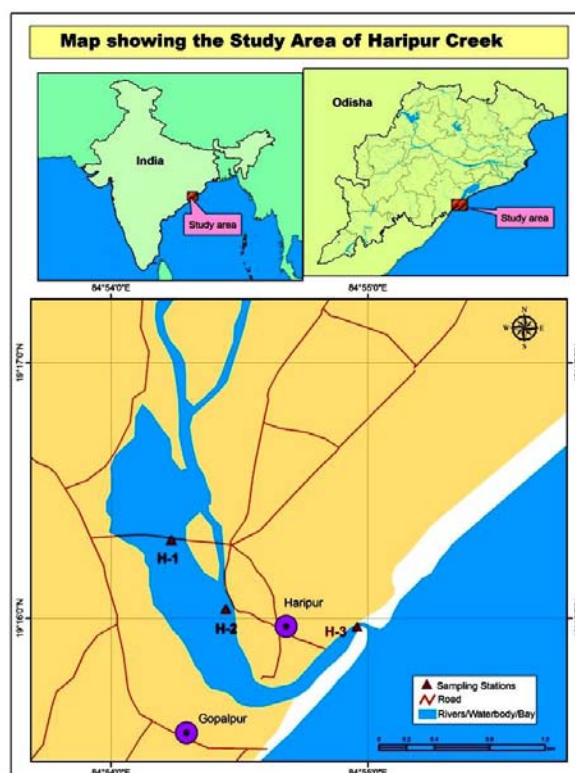


Fig. 1- Collection site of the Sea grass *Halophila ovalis* at Haripur Creek (Gopalpur).

Result and Discussion

The present observed specimen was identified as *Halophila ovalis*. It was collected from the shallow region of Haripur backwater system which is actively connected to Bay of Bengal. There were many patches of *Halophila ovalis* observed from this region (Fig.1) and it is commonly known as “*Chaari dala*”. Its taxonomical nomenclature is Phylum-Tracheophyta, Class-Liliopsida, Order-Hydrocharitales, Family - Hydrocharitaceae, Genus-*Halophila* and Species - *Halophila ovalis* (R.Brown) J. D. Hooker, 1858.

Morphological description

The plant was small, long and narrow rhizomes about 2mm long in diameter while internodes were 0.5-4cm long; one root was originated from each erect shoot which consisted of a pair of leaves formed from each node. Petiolated leaves length ranged from 3-5 cm enveloped by a pair of transparent scales. The scale apex was emarginated and the base articulated. Leaf blade was oblong, oval, elliptic or spatulate, lanceolate or linear, width 0.8-1.2 cm and length 1- 2 cm, apices rounded, bases cuneate, attenuate or truncate; entire margins; with 13-22 pairs of cross-veins which are often forked. Midrib connected to the intra marginal nerve at the top which provides the basic information regarding the identification of sea grass as *Halophila ovalis*^{3,6} (Fig.2).



Fig.2-Mass of sea grass *Halophila ovalis* collected from Haripur Creek, Gopalpur-on-sea.

Key Identification and habitat characteristics

The plant was branched, creeping; rhizomes were

slender, single root with root hairs originated from each rhizome. This plant can grow in marine to brackish water conditions where the sediment was sandy to sandy clay in nature. Hence, found in intertidal to sub tidal region^{5, 7}. The most significant identifying characters of *Halophila ovalis* was its leaf which was further differentiated into petioles and blades; lamina oblong, elliptic, linear, ovate, obovate or spatulate lateral shoots short, 1 cm or less, often inconspicuous, with only one pair of leaves; cross veins present, linking the mid-rib and intra marginal veins. This has also been characterized as leaf lamina 2-3cm long; cross veins 13-22pairs, Leaf margin are not serrulate, Leaf blades 10–40 mm, with 12-25 pairs of cross-veins at an angle of 45°- 60°, roots solitary at each node with soft root hairs. Internodes are 5.5cm long and 2.5mm thick. Scales 2, one embracing the base of the petioles and the other embracing the rhizomes. Leaves 4-12.6cm long, paired at nodes, glabrous Petioles subterete, fleshy, transparent. Lamina oblong-elliptic, oblanceolate, linear-elliptic, linear-oblong, cuneate to slightly oblique at base, rarely subtruncate, obtuse to acute at apex, entire or rarely undulate along margins, pale to dark green (Fig 3).



Fig. 3-A plant of *Halophila ovalis*

Distribution

The distribution of *Halophila ovalis* is confined to world over ranging from temperate to tropical regions such as Indo-West Pacific. The most common areas of abundance of *Halophila ovalis* are the shallow coastal regions of India, Australia, New South Wales, Tasmania, Queensland, South Africa, Madagascar, Seychelles, Mauritius, Israel, Saudi Arabia, Yemen, Kuwait, Vietnam, Hong Kong, China, Ryukyu Islands, Malaysia, Indonesia, Papua New Guinea, Iran, Bahrain Islands, Sudan, Kenya, Caroline Islands,

Hawaiian Islands, Samoa Islands, Tanzania, Mozambique, Sri Lanka, Burma, Andaman Islands, Thailand^{3,6}. There are all total 58 species of sea grass belonging to 12 genera are recognized in the world. Out of which 17 species are found in India contributing 33% of the global diversity⁸. Dominant regions where the major sea grass meadows were observed in the Indian sub-continent is located at the southeast coast (Gulf of Mannar and Palk Bay), a number of islands of Lakshadweep (Arabian Sea), Andaman and Nicobar island of (Bay of Bengal), Coromondal coast⁹ and Chilka lake¹. The distribution of sea grass in Indian coast^{1, 9,10,11} are given in the Table 1.

Table 1- Distribution of sea grass along the Indian coast

Coastal regions	No. of species
Andaman & Nicobar island	9
Andhra Pradesh	7
Gujarat	4
Karnataka	3
Kerala	1
Lakshadweep island	7
Maharashtra	2
Odisha	5
Tamil Nadu	15
West Bengal	6

here are 20 species of the genus under *Halophila* distributed worldwide namely *H. australis*, *H. baillonis*, *H. beccarii*, *H. capricorni*, *H. decipiens*, *H. engelmannii*, *H. gaudichaudii*, *H. hawaiiiana*, *H. japonica*, *H. johnsonii*, *H. major*, *H. mikii*, *H. minor*, *H. nipponica*, *H. okinawensis*, *H. ovalis*, *H. spinulosa*, *H. stipulacea*, *H. sulawesii* and *H. tricornata*¹². Such wide range of distribution is due to its adoptability to withstand against adverse environmental conditions. Most significantly it was observed in euryhaline and eurythermal nature of habitat where it is tolerant to frequent fluctuation of salinity and temperature^{7,10,11}. The habitat variation could able to impose certain variation in its morphological characters in relation to spatio-temporal scale.

Presence of sea grass in any ecosystem supports greater biodiversity than bare lands. Occurrence of *Halophila ovalis* in Haripur creek could able to increase the biodiversity profile of the area including potential fisheries output. Protections of such regions are very much essential from biodiversity as well as fisheries point of view. It is imperative to carryout continues study for the species distribution and its habitat in relation to the influence of natural and anthropogenic parameters, which could help to develop a management plan for restoration of the habitat.

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