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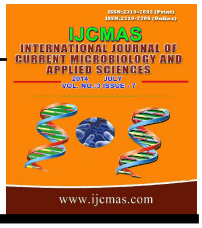

Short Communication

Occurrence of *Oscillatoria perornata* Skuja *f.attenuata* Skuja (Oscillatoriacae): New report to India from marine habitat

M.Shamina[1*] and Arun T. Ram[2]

Department of Botany, University of Calicut, Kerala, India
**Corresponding author*

A B S T R A C T

Keywords

Oscillatoria perornata f.attenuata, cyanobacterium,

The present communication deals with the important cyanobacterium *Oscillatoria perornata f.attenuata*. This cyanobacterium was collected from Kadalundi (Kerala), India, which is seen in associated with mangroves. The present report of cyanobacterium is the first record on the occurrence of *Oscillatoria perornata f.attenuata* from marine habitat of India. Detailed morphological and taxonomic descriptions are provided. This is the first report of the species *Oscillatoria perornata f.attenuata* from marine habitat of India.

Introduction

Cyanobacteria are prokaryotic oxygenic phototrophs found in almost every conceivable habitat on earth (Ferris et al., 1996; Ward et al., 1997). Cyanobacterial taxonomy has been established based on morphological features, such as the shape and dimensions of the cells, presence of structurally differentiated cells, and whether the cells grow as solitary cells or in colonies (Paerl, 1988). Based on the International Code of Botanical Nomenclature the class Cyanophyceae, contains about 150 genera and 2,000 species (Hoek et al., 1995). Cyanobacteria thrive in a wide range of mostly aquatic habitats. The diversity of cyanobacteria can be seen in the multitude of structural and functional aspects of cell morphology and in variations in metabolic strategies, motility, cell division, developmental biology, etc. Benthic cyanobacteria are abundant in mangrove environments (Thajuddin and Subramanian, 1992) and 20% of species that occur saline conditions are truly marine.

The genus *Oscillatoria* is a filamentous cyanobacterium which is named for the oscillation in its movement. *Oscillatoria* sp. is the subject of research into the production of natural butylated hydroxytoluene (BTH) as an antioxidant (Babu and Wu, 2008). A study on mangrove-associated cyanobacteria in Muthupet estuary region in India has recorded the presence of 17 cyanobacterial species in which *Oscillatoria claricentrosa* was found only on *Sueada martima* (Selvakumar and Sundararaman, 2001). The species specificity may be attributed to the root exudates and also the environment concern. The root exudates may play a key role in forming a community structure by selectively stimulate and enrich certain

groups of bacteria (Burgmann et al., 2005). 14 species of *Oscillatoria* has been reported from mangrove sediment of South East Coast of India (Sakthivel and Kathiresan, 2013). The species *Oscillatoria perornata* Skuja *f.attenuata* Skuja has not been reported so far from marine habitat even though habitats promoting occurrence of this cyanobacterium is not rare.

Materials and Methods

The cyanobacterium was collected from Kadalundi estuary (10^0 7' 36" N and 75^0 50' 02" E). The samples were collected from sea water, pneumatophores, shells, woods etc. of Kadalundi mangrove ecosystem. The collected specimens were preserved in 4% formalin (APHA, 1998) for further analysis. Cyanobacterial identification was done with manuals of Desikachary (1959). Physico-chemical analysis was done with Multi-parameter PCS Tester 35.

Results and Discussion

The cyanobacterium was observed from the pneumatophores of *Avicennia officinalis*. The taxonomic enumeration is provided as follows, *Oscillatoria perornata* Skuja *f.attenuata* Skuja Trichomes narrower, 10-12µ broad, ends prominently attenuated, pale blue green with gas vacuoles.

Earlier reports revealed that the species, *Oscillatoria perornata f.attenuata* is purely fresh water (Patil et al., 2012, Dwivedi et al., 2008). But, the present report of cyanobacterium is the first record on the occurrence of *Oscillatoria perornata f.attenuata* from marine habitat of India.

Physico-chemical analysis of water revealed that the pH range from 7.4-8.03, water temperature ranges from 26.2 to 30.5. Toledo et al (1995) observed that colonization of non-heterocystous, filamentous cyanobacteria resembling *Lyngbya* and *Oscillatoria* species in aerial roots of black mangrove. Studies revealed that there is a clear evidence of the advantages of nitrogen fixation by bacteria and cyanobacteria to the mangrove ecosystem (Potts, 1979, Van der Valk and Attiwill, 1984, Hicks and Sylvester, 1985, Sheridan, 2001).

Therefore, it is suggested that there could be a mutual relationship between mangroves and cyanobacteria. The diverse issues elevated through this study will lead to extensive research which will provide further evidence of the association of cyanobacteria in mangrove vegetation and their mutual interaction and benefit.

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