

Research Article

CYANOBACTERIAL BIODIVERSITY AT MANGROVE VEGETATION OF KADALUNDI, KERALA

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ABSTRACT

Cyanobacteria are the largest, most diverse and widely distributed group of photosynthetic N₂ fixing prokaryotes. Cyanobacteria plays a vital role in mangrove community food webs. The aerial root system of mangrove trees provides a hard substratum for the attachment of epiphytic algae such as diatoms and cyanobacteria. The study area Kadalundi is about 20 Kms from the Kozhikode city which lies between North latitude 10°7'36" N and East latitude 75°50'02" E. A total of 13 Cyanophycean members were identified. The identified genera were *Chroococcus turgidus*, *Merismopedia elegans*, *Spirulina subsalsa*, *Lyngbya martensiana*, *Phormidium molle*, *Oscillatoria ornata var. crassa*, *Oscillatoria curviceps*, *Oscillatoria perornata f. attenuata*, *Oscillatoria salina*, *Oscillatoria minnesotensis*, *Microcoleus chthonoplastes*, *Microcoleus acutissimus* and *Nostoc microscopicum*. Kadalundi mangrove vegetation provides suitable niche for the growth of phytoplanktons like cyanobacteria. By documenting the cyanobacterial flora of mangrove ecosystems provides a solid foundation for scientific descriptions like ecology to begin the formulation of good management practice.

Keywords: *Cyanobacteria, Mangrove Vegetation*

INTRODUCTION

Cyanobacteria are the largest, most diverse and widely distributed group of photosynthetic N₂ fixing prokaryotes. Cyanobacteria are single-celled organisms that live in fresh, brackish, and marine water. Taxonomic studies on the Cyanophyceae are very scarce. Dor (1984), studied the vertical zonation and morphological adaptations of the epiphytic blue-green algae found at Sinai Estuary's mangroves and Lambert *et al.* (1989) reported 27 taxa of blue-green algae and their relative abundance for South Indian mangroves. The Cyanobacteria (blue-green algae) also serve as an extra and significant source of nitrogen in the oligotrophic mangrove habitats of arid climate regions (Potts, 1979).

Cyanobacteria play a vital role in mangrove community food webs. The aerial root system of mangrove trees provides a hard substratum for the attachment of epiphytic algae such as diatoms and cyanobacteria. Phytoplanktons are an important component of mangrove ecosystem. Species richness in depend upon the primary source of water and salinity level as well as seasonal and daily environmental fluctuations. The majority phytoplanktons are washed into the mangroves from adjacent areas, including Open Ocean, fresh water and estuarine environments.

There is a very little knowledge on the Cyanobacterial flora in the mangrove ecosystem. Regarding the taxonomy of the Cyanophyceae, no studies on estuarine mangrove environments have been published. The present study aimed to assess the Cyanobacterial diversity in Kadalundi mangrove area.

MATERIALS AND METHODS

The study was carried out in the Kadalundi mangrove ecosystem of Kerala. Kadalundi is about 20 Kms from the Kozhikode city. Kadalundi lies between North latitude 10°7'36" N and East latitude 75°50'02" E. The samples of cyanobacteria were collected from sea water, pneumatophores, shells, woods etc. of Kadalundi mangroves. The collected specimens were preserved in 4% formalin (APHA, 1998) for further analysis. Cyanobacterial identification was done with manuals such as Desikachary (1959) and Anand (1989).

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RESULTS AND DISCUSSION

In the taxonomic survey of cyanobacterial diversity of mangrove ecosystem in Kadalundi, about 13 Cyanophycean members were identified. They are represented in the following Table 1.

Sl No.	Name of the Species
1	<i>Chroococcus turgidus</i> (Kutz) Nag.
2	<i>Phormidium molle</i> (Kutz) Gomont.
3	<i>Lyngbya martensiana</i> Menegh.ex Goma
4	<i>Merismopedia elegans</i> A.Br.
5	<i>Oscillatoria salina</i> Biswas.
6	<i>Oscillatoria curviceps</i> Ag.ex Gomont.
7	<i>Oscillatoria perornata</i> Skuja f. <i>attenuata</i> Skuja
8	<i>Oscillatoria ornata</i> Kutz.ex Gamont var. <i>Crassa</i> Rao,C.B.
9	<i>Oscillatoria minnesotensis</i> Tilden
10	<i>Spirulina subsalsa</i> Oerst.ex Gomont
11	<i>Microcoleus acutissimus</i> Gardner
12	<i>Microcoleus chthonoplastes</i> Thuret ex Gomont
13	<i>Nostoc microscopium</i> Carn.ex Born.et. Flah

The members of cyanobacteria, *Oscillatoria sp.* and *Lyngbya sp.* were observed from pneumatophores. Toledo *et al.* (1995) determined the vertical zonation of cyanobacteria on pneumatophore of *Avicennia germina*. They determined that the bottom part was colonised by non heterocystous cyanobacteria (*Lyngbya sp* and *Oscillatoria sp*).

The present study revealed that the Cyanobacteria can flourish well in mangrove ecosystem, since they are one of the undisturbed areas of our ecosystem. Kadalundi mangrove vegetation provides suitable niche for the growth of phytoplanktons like cyanobacteria. By documenting the Cyanobacterial flora of mangrove ecosystems provides a solid foundation for scientific descriptions like ecology to begin the formulation of good management practice.

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