



New records of lichens on Mangrove in the Andaman Islands of India

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ABSTRACT

The mangrove vegetation and the coastal forest of Nicobar Islands, India, were severely damaged by the force of the tsunami in the year 2004 and the loss of habitat due to the sudden rise in sea level. The area was surveyed for the occurrence of lichens on mangrove plants in different localities of south, middle and north Andaman Islands. Twenty nine species of lichens were earlier recorded by us. The present paper includes eight species out of which three are new reports to India and four species are new to Andaman Islands.

KEYWORDS

lichens, lichenized fungi, taxonomy, hotspots

INTRODUCTION

The Andaman and Nicobar in Bay of Bengal consist of about 300 islands, covering an area of about 8300 sq. km. The topography in Andaman and Nicobar Islands comprises of a long range of hills with evergreen forests. The islands hold a series of ridges and mountains, with moderate elevation and slopes in Andaman and Nicobar. The topography of Andaman and Nicobar Islands comprises of North Andaman, Middle Andaman, South Andaman and Little Andaman in the Andaman group of islands. The soil and vegetation shows a distinct pattern with the prevalence of evergreen and deciduous forests in some areas, and grassland in some others. One of the dominant vegetation of the islands is mangrove forest restricted to the coastal areas and confined to creeks in different islands of Andaman. (**Map 1**)

The lichen flora of Andaman and Nicobar islands is unique in terms of diversity and endemism. There are many foliicolous taxa too. So far over 307 species of lichens are known to occur in this area and 93 species are endemic. (Singh, K.P. et al. 2004).

The world's most productive ecosystem, the mangrove forest, is under immense threat due to natural and human induced disturbances. The Indian Ocean tsunami on 26 December 2004 had an adverse effect on these habitats by breaking and uprooting the mangrove trees.

Mangroves are remarkable ecosystems that thrive in the transitional zone between the land and the ocean. They survive high salinity, tidal extremes, strong wind velocity, high temperature and muddy anaerobic soil – conditions normally hostile to other terrestrial plants. (Bhatt et al., 2011). The mangrove vegetation exceeds 22.5 % of the total forest cover. Ever increasing population pressure, pollutant discharges from industries, oil refineries, tanneries, urban areas, etc. has turned mangrove forests into a vulnerable and fragile ecosystem. During the past three decades the mangrove flora and mangrove ecosystem has received much attention from the scientific communities (Naskar & Mandal, 1999).

Several explorations were made to this island by various lichenologists from India but very few papers have recorded the lichen species occurring on mangrove vegetation in particular. With this background project was undertaken and the work has been carried out in Andaman Islands of India particularly on mangrove plants for the occurrence of lichens after tsu-

nami.

In our earlier paper we have recorded 29 species of lichens, of which 14 are new records to Andaman and Nicobar Islands and 5 new records were made new to India (Sethy et al. 2012). This paper is our further work on lichens collected from Andaman and Nicobar Islands during 2007-09.

MATERIALS AND METHODS

Andaman Islands was surveyed from 2007-2009 for assessing the occurrence of lichens on mangrove plants.

The specimens were collected from Andaman Islands during consecutive years 2007 in November-December) and 2008 in March. The specimens were examined with a stereomicroscope and a light microscope. Sections of the thalli and apothecia were stained with Lugol's solution. All sections were examined with lactophenol as mounting medium. Chemical constituents were identified by thin-layer chromatography using methods standardized for lichen products (Culberston & Kristinsson, 1970, Culberston, 1972, White & James, 1985) with the solvent systems benzene-dioxane-acetic acid (180:45:5), hexane-ethyl ether-formic acid (130:80:20), and toluene-ethyl acetate-formic acid (139:83:8). Specimens were identified using literature and by comparison with types and protologues. All examined specimens are deposited in Ajrekar Mycological Herbarium (AMH).

TAXONOMY

Anisomeridium indicum (Makhija & Patw.) R.C. Harris

More Florida lichens, Including the 10¢ tour of the Pyrenolichens (Published by the author, Bronx, New York), p. 147 (1995).

= *Ditremsis indica* Makhija & Patw., Biovigyanam 16(1): 18 (1990).

Thallus gray, smooth; ascumata black, solitary, globose to subglobose; ostiole oblique, white; ascospores oblong to oblongate-ellipoidal, 29- 39 x 10-15 µm.

Earlier the species is known from Karnataka and Maharashtra and is being reported for the first time from the Andaman Islands.

***Lecanora xylophila* Hue** Ann. Mycol. , 13: 91 (1915).

Thallus grayish-green, without isidia and soredia; apothecia brown to blackish, sessile, solitary to grouped; ascospores oblong to slightly ellipsoidal, simple, 15-18 x 6-9 μ m.

The species is recorded from Goa, Jammu and Kashmir, Madhya Pradesh, Maharashtra, Tamil Nadu, Uttar Pradesh, and West Bengal and now known from Andaman Islands of India.

***Leptogium javanicum* (Mont. & Bosch) Mont.**, Gatlung Asterrina: 379 (1856)

= *Stephanophorus javanicus* Mont. & Bosch, Pl. Jungh. 4: 492 (1855).

Thallus lacking tomentum on the lower surface, lacking isidia, thallus surface without warts, upper and lower side distinctly wrinkled; apothecia distinctly stalked or tubular, dome shaped, dilated; thalline exciple vertically plicate, to sometimes lobulate; ascospores muriform, ellipsoid, 16-35 x 9-13 μ m.

The species is known from the Arunachal Pradesh, Madhya Pradesh, Manipur, Uttarakhand, West Bengal of India and recorded for the first time from Andaman Islands.

***Pyrenula brunnea* Fée**, Essai Crypt. Exot., Suppl. Révis. (Paris): 81 (1837).

The species is characterized by crustose, corticolous, dark brown to rust brown thallus without soredia and isidia; ascumata black, solitary, carbonized; cream coloured, central ostiole, epapillate ostiole; ascospores light brown to dark reddish-brown, 3-transseptate, 4 locular; no lichen substances.

The species was earlier recorded from Arunachal Pradesh and Meghalaya and now is reported for the first time from the Andaman Islands.

***Pyrenula glabrescens* Vain.**, Ann. Acad. Sci. fenn., Ser. A 6(no. 7): 191 (1915).

The species has distinctive features with dark yellow thallus; ascumata solitary; ostiole maillate-papillate; ascospores oblong-oval, 15-20 x 7-12 μ m.

The species is distributed in Arunachal Pradesh, Karnataka and Kerala and now recorded from the Andaman Islands.

***Pyrenula microcarpa* Müll. Arg.**, Bot. Jb. 6: 412 (1885).

Thallus greyish white; ascumata solitary, subglobose; ostiole not black, pale; ascospores brownish, 3-transseptate, fusiform, 16-22 x 6-11 μ m; no lichen substances.

The species has a pantropical distribution and is now recorded for the first time from India.

***Pyrenula pyrgillospora* Aptroot**, in Aptroot, Diederich, Séru-siaux & Sipman, Bibliothca Lichenol. 64: 166 (1997).

Thallus pale brown, smooth; ascumata solitary, globose to

subglobose; ostiole not black, pale, apical; ascospores brown, 3-transseptate, 21-32 x 7-10 μ m; no lichen substances present.

The species is so far known from Papua New Guinea and now reported here for the first time from India in Andaman Islands of India.

***Polymeridium subcinereum* (Nyl.) R. C. Harris**

= *Arthopyrenia subimitans* Müll. Arg., Bull. Soc. Roy. Bot. Belg. 32(1): 169 (1893).

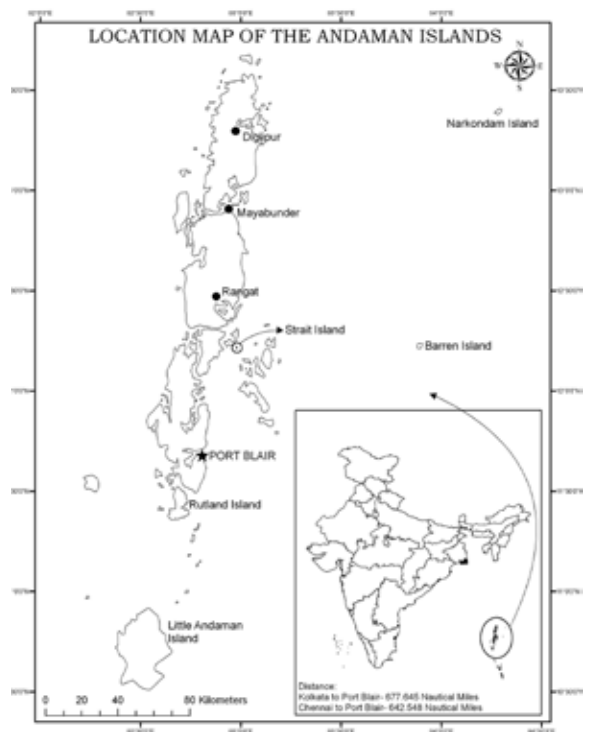
Thallus white to yellowish or grey; ascumata simple, black, globose to pyriform, erumpent; ostiole apical to lateral; ascospores 8 per ascus, 3-septate, 16-20 x 3-5 μ m.

The species has pantropical distribution and now has been reported for the first time from India.

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Map 1



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