

DIPLOOSPORA INDICA, A NEW SPECIES OF HYPHOMYCETES

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ABSTRACT

A new species of Hyphomycetes, *Diploospora indica* Sreekala & Bhat, isolated from freshwater foam and submerged leaf litter of *Dipterocarpus laevis*, is described from India. The new taxon is compared with known species of the genus and other similar genera.

KEY WORDS: limnology, streams, taxonomy, India.

INTRODUCTION

During a taxonomic survey of aquatic fungi of the forests of Western Ghat mountain ranges in southern India, a number of elongate, aseptate, fusiform, smooth and dorsi-ventrally flat conidia were encountered in foam and on submerged leaf litter of *Dipterocarpus laevis* Buch. (Dipterocarpaceae) gathered from a freshwater stream in Cotigao Wildlife Sanctuary in the State of Goa. The fungus was brought to culture and described here as a new species of the genus *Diploospora* Grove.

MATERIALS AND METHODS

Fresh foam was gathered by gently shoveling a glass petri plate lid through a foam cake found accumulated along the edge of a fast flowing stream in Cotigao Wildlife Sanctuary, Goa. A few drops of the liquid foam were flooded over 2% malt extract agar (MEA) plates mixed with a cocktail of antibiotics (bacitracin 0.02 g, neomycin 0.02 g, penicillin G 0.02 g, polymyxin 0.02 g, streptomycin 0.02 g and terramycin 0.04 g dissolved in 10ml of sterile distilled water and added to 1 L of cooling sterile MEA medium). The foam-flooded agar plates were rotated orbitally so as to have a uniform spread of the spores. The foam-spore plates were transported to the laboratory in an ice box maintained at 4°C.

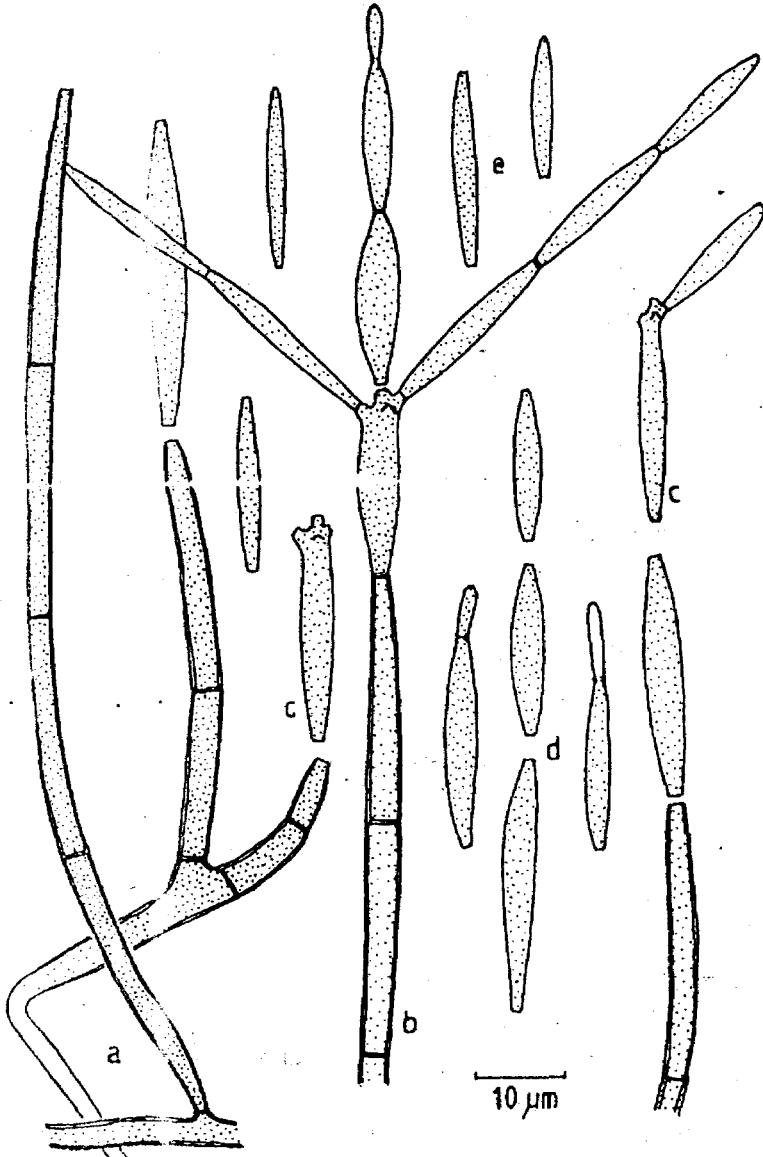


Fig.1. *Diplospora indica*. a. conidiophores, b. conidiophore with ramoconidia and conidia, c. ramoconidia, d. mature conidium showing acropetal development of conidia, e. conidia. (All drawn from pure culture).

The submerged leaf litter collected from the stream was thoroughly rinsed, initially in stream water and later with deionized tap water after transporting to the laboratory in fresh polythene bags. After incubation in sterile distilled water in a vertical glass jar and agitation at 20-22°C in a continuous flow of sterile air, conidia laden bubbles were observed on the surface after five days. They were transferred to MEA plates by gently scooping the surface water from the jar and spreading it over the agar surface. Single germinating conidia were detected under the dissecting microscope and aseptically isolated from both foam and leaves onto fresh MEA plates using a sterile flattened needle. The plates, sealed with parafilm in order to protect them from mites and other contaminants, were incubated in a day light growth chamber at 20-22°C. The fungus grew well reaching up to 10 mm diam in 10 days but sporulated sparsely on the agar surface even after three weeks of incubation.

DESCRIPTION

Diplospora indica Sreekala et Bhat *anam. sp. nov.*

(Fig. 1)

Fungi conidiali, Hyphomycetes. Coloniae concentricae, effusae, albae, margine laeviae; reversione concoloriae vel pallide brunneae. Mycelium superficiale et immersum, ex hyphis ramosis, septatis, laevibus, incoloris, 1.5-2 μm crassis compositum. Conidiophora terminali vel laterali, mononematica, recta, flexuosa, laevia. 2-7-septata, ramosa, pallide brunnea, tenue crassitunicata, 75-125 x 3-5 μm . Cellulae conidiogenaе integratae, polyblasticae, apicales, post secessionem conidiorum ad apicem, truncatae, 10-22 x 3-4 μm . Conidia in pseudocatenas acropetas longas, ad basim ramosas, fusioidea, utrinque truncata, laevia, aseptata, dorsi-ventrale leviter applanata, incolorata vel subhyalina, pallide brunnea in massa, 12-33 x 3-4 μm ; ramoconidia aseptata, longa, basi truncata; cicatrices terminales, 2-5.

HOLOTYPE, dried culture mat derived from single spore isolate IMI 384550 (1); ex Herb. No. GUFCC-161 (Isotype); Cotigao Wild Life Sanctuary, South Goa, India. Sreekala, K. Nair, 19.VII.1999.

Conidial fungus, Hyphomycete. Colonies consisting of concentrically zonate hyphae alternating with conidial mass, effuse, white, with smooth margin, slow growing, reaching 0.5-1.0 cm diam. in 10 days, reverse of the colony colourless to pale brown. Mycelium partly superficial, composed of smooth, colourless hyphae 1.5-2 μm wide. Conidiophores terminal or lateral, mononematous, erect, flexuous, smooth, moderately thick-walled, 2-7-septate, branched, pale brown in mass, 75-125 x 3-5 μm . Conidiogenous cells integrated, polyblastic, 10-22 x 3-4 μm , apically truncate after secession of conidia. Conidia in long, acropetal, simple to proximally branched, false chains, fusiform, narrow and truncate at both ends, dorsi-ventrally flat, smooth-walled, aseptate, hyaline to very slightly pigmented, pale brown in mass, 12-33 x 3-4 μm ; ramoconidia aseptate, truncate at the base, with 2-5 terminal flat scars.

Hughes (1968) examined and redescribed *Diplospora rosea* Grove, the type species of the genus *Diplospora* Grove, from the type collection maintained in W.B. Grove's herbarium in Herb. BM. The genus *Diplospora* is characterised by its catenate, hyaline but in mass dull pink-coloured, 1-2-septate, conidia in acropetal.

branched chains developing on hyaline, simple, branched conidiophores. The conidia of *D. rosea* are cylindrical to broadly ellipsoidal and truncate at each slightly denticulate raised end (Hughes, 1968). The conidia of the second species known in the genus, *D. longispora* Matsushima (1975), are 1-3 septate and cylindrical. Those of *D. indica* are however aseptate and fusiform. *Diploospora rosea* and *D. longispora* are terrestrial whereas the conidia of *D. indica* were collected in an aquatic habitat although they may have been washed in from nearby litter.

The genus *Diploospora* shows some similarity with dematiaceous genera such as *Cladosporium* Link, *Lulea* Morgan-Jones, *Ramularia* Unger, *Septocylindrium* Bonord. ex Sacc. and *Septonema* Corda wherein the conidiophores are robust and stiff and the catenate conidia are moderately to dark-coloured and of varying shapes (Carmichael et al., 1980; Matsushima, 1975).

ACKNOWLEDGEMENTS

This work was supported by a research grant to Dr. D.J. Bhat, Department of Botany, Goa University, from the Department of Science & Technology, Government of India. The authors are grateful to Dr. E. Descals, IMEDEA, CSIC/UIB, Spain, for reviewing the manuscript.

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