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## ***Temerariomyces indicum* - a new species of sporodochial fungus from Sanjay Gandhi National Park, Mumbai, India**

Rashmi Dubey

Botanical Survey of India, Western Regional Centre, Pune – 411001,  
Maharashtra, India**\*Corresponding author:** [dr.rashmidubey@gmail.com](mailto:dr.rashmidubey@gmail.com)

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### ABSTRACT

An undescribed anamorphic Ascomycota fungus was collected during investigations of foliicolous fungi in Maharashtra state of India. In morphology, new collection resembles *Temerariomyces* which is till monotypic. New collection was compared with the type species and it is morphologically distinct thus, introduced as *Temerariomyces indicum*. New species is illustrated, description is provided and compare with the type species.

**Key words:** Microfungi, Mumbai, Protected areas, Sporodochia.

### INTRODUCTION

Sanjay Gandhi National Park (SGNP), Borivali, commonly known as Borivali National Park (BNP) or “Krishnagiri Upwan” is indeed an oasis in the concrete jungle situated at the extreme north of Mumbai and comes under the Konkan, the coastal region of Maharashtra state. The area of the park lies between longitude 72°53` to 72°58`E & latitude 19°08` to 19°21` N covering an area of approx. 104 sq. km. It is a part of spur of Sahyadri Ghats/Western Ghats range that shoots off westerly. Due to its proximity to the coast, numerous water courses and hilly terrain, the flora presents a very vast picture ranging from dry and moist deciduous, semi evergreen, open scrub and to halophytes. A small portion of the Park (about 1.5%), on the banks of the Vasai creek known as Bassein, is at sea level and has mangrove patches and other characteristics of a typical coastal estuarine zone. Beyond the creek is the northern block (Nagla) and the lush forests of Tungreshwar. The Arabian sea and altitude upto about 1500 feet from mean sea level (MSL), forms

a transition from typical moist deciduous to semi evergreen vegetation and littoral swamp vegetation covering mangroves besides having two fresh water lakes. These factors have added to the biological diversity and also offers a congenial environment for the growth of epiphytic and parasitic fungal species. During mycological survey of foliicolous fungi from the dense forest of the Sanjay Gandhi National park, an unusual and very interesting Anamorphic Ascomycetes fungus was collected growing on the leaf hairs of *Nymphae rubra* Roxb. ex Andrews (Nymphaeaceae) floating in pond water. The fungus was identified as *Temerariomyces*. The genus was established by Sutton in 1993 with *T. acutulus* as the type species, from the leaf hairs of unidentified leaf collected from Mt Mulanje, Chambe (Asia) (Sutton, 1993). Still the genus is monotypic (Jamaluddin, 2004, Anonymous 2018, Bilgrami et al. 1981, 1991) with type species *T. acutulus* and is characterized by superficial, immersed, irregularly branched mycelium, anastomosing over and intertwining the leaf hairs; Sporodochial conidiomata; Conidiophores micronematous, mononematous,

comprising the cells of the vegetative mycelium; Conidiogenous cells discrete, determinate or indeterminate, apical and lateral on vegetative hyphae and then polyblastic with 1 or more conidiogenous loci, brown, smooth, with the periclinal wall differentially thickened; Conidia formed in powdery, black masses, holoblastic, irregularly catenate, brown, ellipsoid, straight, depressed on one side, with differentially thickened periclinal walls and appears reniform in transverse section. The newly collected species was found to be entirely different from the type species in size of Sporodochia, pattern of conidiogenesis and the dimensions and shape of conidia. in the size of conidiomata and the attachment, shape and size of conidia.

## MATERIAL AND METHODS

Samples of wet leaves were placed in brown paper bags, taken to the laboratory, and prepared according to Castaneda-Ruiz (2005). Mounts were prepared in Lacto phenol (lactic acid, and phenol). Photomicrographs were taken using an Olympus compound microscope model CX -41 connected to a DP22 and DP27 camera. The type specimen is deposited in Botanical Survey of India, Western Regional Centre, India, Pune.

### *Temerariomyces indicum* sp. nov.

(MB 816647)

#### Figs. A-I

**Etymology:** species named after the name of country (India) from where it was found.

Colonies black, scattered, effuse over the surface of leaf hairs. Mycelium superficial and immersed, irregularly branched, septate, smooth, pale brown, 2.0-3.0 mm diam., anastomosing over and intertwining the leaf hairs. Conidiomata sporodochial, dark black, superficial, composed of a loose aggregation of vegetative hyphae and conidiogenous cells, 50 – 75 µm in diameter, reduced, brown. Conidiophores micronematous, mononematous, comprising the cells of the vegetative mycelium. Conidiogenous cells discrete, determinate or indeterminate, apical and lateral on vegetative hyphae and then polyblastic with 1 or more conidiogenous loci, brown, smooth, with the periclinal wall differentially thickened, 3.5-6.0 µm high x 3-5 µm wide. Conidia formed in powdery, black masses, holoblastic, irregularly catenate, brown, smooth, aseptate, spherical to almost rounded, with differentially thickened periclinal walls, 4-6.5 µm in diam, the successive conidia mostly arises from the apical part of conidial wall and very rarely laterally.

**Specimen examined:** On the leaf hairs of *Nymphae rubra* Roxb. ex Andrews (Nymphaeaceae), Sanjay Gandhi National Park, Maharashtra, India, 24.09.2013. Rashmi Dubey, 196372 BSI (WC).

**Distribution:** The genus is reported for the first time from India with a new species of viz. *Temerariomyces indicum* sp.nov.

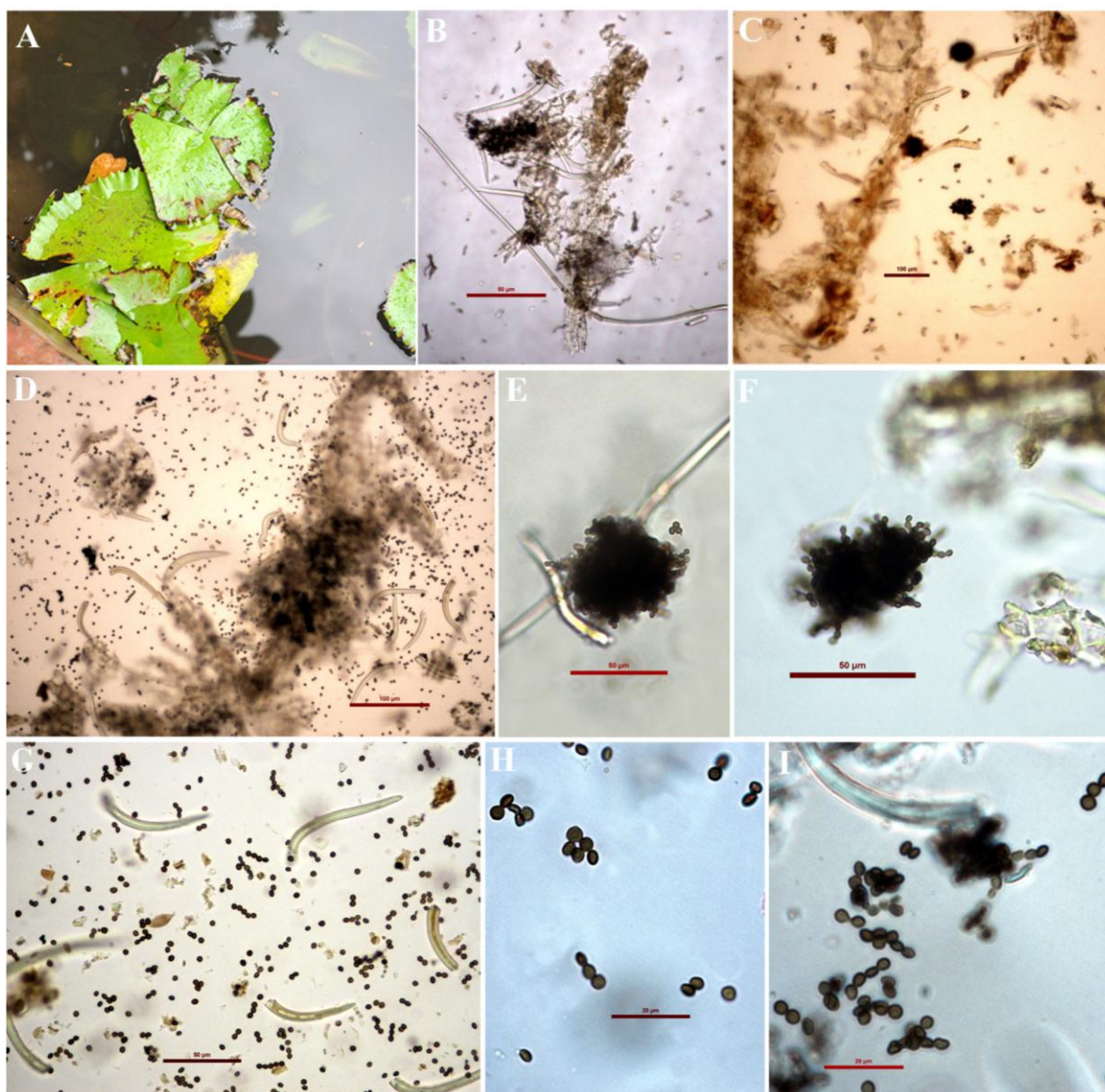
**Culture examined:** The fungus was inoculated in different culture medium PDA, Oat meal Agar, Potato carrot Agar for a period of 45 days, but no culture growth were observed.

**Sequence data:** There is no sequence data available.

**Notes:** The present species differs from the type species in size of Sporodochia, pattern of conidiogenesis and the dimensions and shape of conidia. The sporodochia of the type species is upto 170 µm in diam, where as the sporodochia of present species is reduced and is 50-75 µm in diameter. In *T. acutulus* the successive conidia originates from 1-2 medianly situated loci on the depressed part of the conidial wall, not at the apices, whereas in the present species the conidiogenous loci is situated, mainly at the apical part and rarely at the lateral part of conidia and thus the successive conidia mostly arises from the apical part of conidial wall and very rarely from the lateral part of conidial wall. The conidia of the type species is irregularly catenate, brown, ellipsoid, straight and is depressed on one side, with differentially thickened periclinal walls and appears reniform in transverse section, whereas the conidia of the present species is catenate, brown, spherical, to almost round, with differentially thickened periclinal walls and is not depressed from one side. Thus, all this features segregates the present collection from earlier reported species and thus it is kept in the category of a new species.

#### Key to Fungal species

1. Sporodochia upto 170 µm in diam, Conidia irregularly catenate, brown, ellipsoid, straight, depressed on one side, with differentially thickened periclinal walls and appears reniform in transverse section.....*T. acutulus*
2. Sporodochia upto 75 µm in diam, Conidia catenate, brown, spherical to almost round, with differentially thickened periclinal walls and not depressed from one side.....*T. indicum*



**Figures of *Temerariomyces indicum* sp. nov.** A. Infected leaves of *Nymphaea rubra* Roxb. ex Andrews. B-D. Colonies on leaf hairs. E. Conidiomata. F-I. Catenate conidia. **Scale bars:** B, E-G = 50  $\mu$ m, C-D = 100  $\mu$ m, H-I = 20  $\mu$ m.

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#### REFERENCES

- Anonymous. 1974–2018. Fungal Database Nomenclature and species identification. MycoBank. <http://www.mycobank.org/> *Temerariomyces* (Accessed on 01.07.2018).
- Bilgrami KS, Jamaluddin, Rizwi MA. 1981. The Fungi of India. Part II (Host Index and Addenda). Today and Tomorrow's Printer and Publishers. New Delhi. 128.
- Bilgrami KS, Jamaluddin and Rizwi MA. 1991. Fungi of India Part-III. List and References. Today and Tomorrow's Printers and Publishers, New Delhi. 778.
- Castañeda-Ruiz RF. 2005. Metodología en el estudio de los hongos anamorfos. 182–183, in: Anais do V Congresso Latino Americano de Micología. Brasília.
- Jamaluddin MG, Goswami, Ojha BM. 2004. Fungi of India 1989-2001. Scientific Publishers, Jodhpur. 326.
- Sutton BC. 1993. Mitosporic fungi from Malawi. *Mycol. Pap.* 167:1-93.