

## Species

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# New Distribution record of *Cyathus striatus* (Huds.) Willd. 1787 from Mandla Madhya Pradesh, India

Manohar Pawar\*

## ABSTRACT

The present study shows the first record of fluted bird nest fungi (*Cyathus striatus*) in Mandla, Madhya Pradesh. This species is observed on the dead stumps of *Dendrocalamus strictus* in Babaiha village near a Hot water spring in Mandla, Madhya Pradesh. This finding shows a new distribution record and ecological note on *Cyathus striatus*.

**Keywords:** *Cyathus striatus*, Macrofungi, New Record, Mandla, Madhya Pradesh.

## 1. INTRODUCTION

According to Hawksworth, (2004), out of the 1.5 million fungal species found worldwide, less than 5% are described so far. Fungi is the most studied group after insects and more than 27000 species are reported from India (Manoharachary et al., 2005). Despite their ecological role, macrofungi are the most studied group and are interested due to their importance in medicinal products, food industries, and biodegradation. The ecological role in nature is not extensively studied because of the short lifespan of sporocarps and the erratic nature of fruiting. Total 24 species of bird nest fungi belonging to four genera have been reported from India (Niranjan and Singh, 2021).

Most of the Bird nest fungi are reported and studied in biodiversity-rich and hotspot areas of Northeastern states in the Eastern Himalaya region (Niranjan and Singh, 2021). In the present study, species of Fluted Bird nest fungi *Cyathus striatus* reported from Mandla Madhya Pradesh. Comprehensive survey conducted in 25 districts of Madhya Pradesh and Chhattisgarh, 150 mushroom species were recorded, and out of 150, only 53 were found edible (Rajak, 2004). Khatri et al., (2009) reported 73 species of wild mushroom flora belonging to 56 genera were collected from Madhya Pradesh and Chhattisgarh during 1999-2001. Documentation of mushrooms in Madhya Pradesh are reported by many authors (Karwa and Rai, 2010; Dwivedi et al., 2012; Dehariya et al., 2010; Dehariya and Vyas, 2013).

*Cyathus* is the largest genus of bird's nest fungi, comprising 61 recorded species with the highest number of species reported from Brazil (Accioly et al., 2018; He et

al., 2019; Góis et al., 2020). This species is reported from America, Europe, and Asia, with wide distribution in temperate regions Brodie, (1975), and numerous records in non-temperate countries such as Turkey, Venezuela, India, China Brodie, (1984), and Brazil (Cruz et al., 2014). Previously this *Cyathus striatus* has been recorded from different parts of India including Nagpur Maharashtra Fulzele, (2013), Arunachal Pradesh Nirajan and Singh, (2021), Hollongapar Gibbon Wildlife Sanctuary (HGWLS), Jorhat, Assam Gogoi and Vipin, (2015), Assam Manalee et al., (2019), Amaravati, Maharashtra (Anand et al., 2023).

## 2. METHODOLOGY

Mandla district, Madhya Pradesh, India, a part of naturally rich biodiversity area is situated in the eastern part of Madhya Pradesh. The average annual rainfall in the district is 1400 mm. The annual mean air temperature is 7 °C to 20 °C in winter and 32 °C to 40 °C in summer. Identification of fungi is confirmed with the help of standard literature; Pegler and Spooner, (1997), Rinaldi and Tyndalo, (1974), Pacioni and Lincoff, (1981), Das and Zhao, (2012) and various sites available for fungi identifications.

## 3. RESULT & DISCUSSION

During a floral assessment survey near a hot water spring (Lat. 22.731589°, Long. 80.320604°) in Babaiha Village, Mandla District, a tiny cup-shaped fungus was observed on the decaying stump of *Dendrocalamus strictus*. After photographing the species, its identification is confirmed as *Cyathus striatus* (Figure 1 A, B, C) based on morphological characteristics and the key to Indian *Cyathus* provided by (Das and Zhao, 2012). The key features of this *Cyathus* species include a peridium with three peridial layers and peridioles covered with a tunica. Further morphological examination revealed that the collected specimen shared similar basidial and peridial characteristics with *Cyathus striatus*.



**Figure 1** A, B, C *Cyathus Striatus* on decaying dead stump of *Dendrocalamus strictus*

Therefore, based on these morphological traits, it was confirmed that the species is *Cyathus striatus*. After review of literature it is confirmed that *Cyathus striatus* is the first recorded of this species in Madhya Pradesh. The genus *Cyathus* Haller, (1768) is saprobic, commonly growing on decaying wood and fertile soil. It forms gregarious basidiomata that are cone-shaped, funnel-shaped, or inverted bell-shaped, reaching up to 3 cm in height. Das and Zhao, (2012) described *Cyathus striatus* as characterized by large, dark, robust fructifications (up to 1.7 cm), a strongly hairy external surface, a conspicuous basal emplacement, a flaring margin, a distinctly

plicated internal and external peridium, a thin tunica, a single cortex, and large ellipsoid basidiospores (11-18 × 9-12 µm) with thick walls (up to 3.5 µm thick).

#### 4. CONCLUSION

*Cyathus striatus* was the first recorded occurrence of this species in Madhya Pradesh, extending its known geographic range. *Cyathus striatus* is an important saprobic organism that aids in the cycling of nutrients and the breakdown of organic matter, especially decomposing wood, from an ecological point of view. Because of its capacity to flourish in these types of substrates, it is crucial for preserving soil fertility and ecosystem health. The diversity and ecological roles of fungus in the area need to be better documented and understood, and this record not only contribute to Madhya Pradesh's fungal inventory. Preserving biodiversity and maintaining ecological balance depends on protecting these species and their habitats.

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#### Authors Contribution

Manohar Pawar prepared the draft of the manuscript and conducted the fieldwork further editing and finalizing the manuscript.

#### Ethical approval & declaration

*Cyathus striatus* (Huds.) Willd. 1787 is a common fluted bird nest fungus (plant-based macrofungi). In this article, as per the plant associated fungi regulations followed in the Foundation for Ecological Security, District –Anand, Gujarat, India, the authors observed the new distribution record of *Cyathus striatus* (Huds.) Willd. 1787 from Mandla Madhya Pradesh, India. The ethical guidelines for plant materials (plant associated fungi) & National Biodiversity Authority Guidelines are followed in the study for species collection & identification.

#### Informed consent

Not applicable.

#### Conflicts of interests:

The authors declare that there are no conflicts of interests.

#### Funding:

The study has not received any external funding.

#### Data and materials availability

All data associated with this study are present in the paper.

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