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Survey And Identification Of Ascomycetes Fungi Hypoxylon From Chhatrapati Sambhajinagar.

Rupwate Shubhangi (1) and Rajurkar Suchita (2)

1)Research Student at Deogiri College, Chh. Sambhajinagar.

2)Professor at Deogiri College, Chh. Sambhajinagar , Maharashtra, India.

Abstract: Present survey is all about the diversity of Ascomycetes Fungi in chhatrapati Sambhajinagar District. Ascomycetes have a diverse habitat. Ascomycetes are economically important. During this study Monitoring of samples were carried out. Fungal identification was carried out using an identification key and comparative microscopic slides. Altogether Twenty-Five samples were collected from 3 sites. *Hypoxylon Rubiginosum* species was dominant.

- *Key words*: Asci, Ascomycetes, hypoxylon.

INTRODUCTION

Most fungi are classified under the Phylum Ascomycota, distinguished by the production of asci—specialized sac-like structures that enclose ascospores (Kamble, 2018). A fruiting body of ascomycetes is called **ascocarp** (Tilak 1967). Ascomycetes are fungi that produce sexual spores known as ascospores, which develop within sac-like structures called asci (Tilak, 1968). This research explores the diversity of *Hypoxylon* species, a genus of Ascomycete fungi, identified in Chhatrapati Sambhajinagar. Particularly from Marathwada region Ramchandra Rao (1963-1974), Jadhav (1972-1974), Talde (1972-1974), Gaikwad (1974), Dhaware (1976-1999) has worked on it (Kamble 2024). The data collected on Ascomycetes in this study will contribute to the understanding and documentation of fungal biodiversity

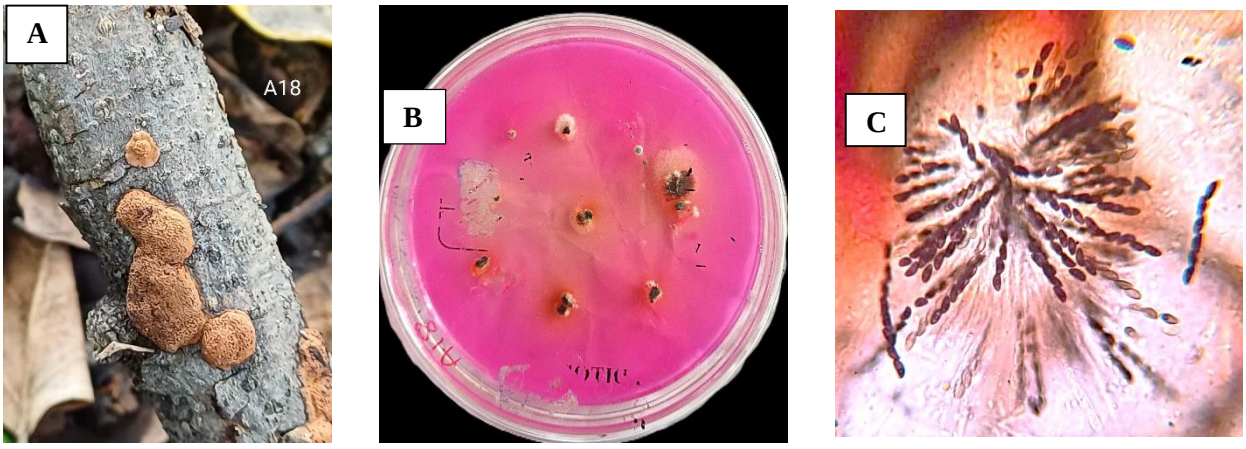
MATERIAL AND METHOD:

For the collection of Ascomycetes, essential materials such as bundles of envelopes, plastic bags, paper slips, and tags were used, especially for fungi growing on various substrates like dead stems, leaves, and branches. Ascomycetes are commonly found in the rainy season, during which they exhibit rapid growth. The collected specimens were inoculated onto suitable culture media, such as Potato Dextrose Agar (PDA), for further analysis (wessels 1994). Growing colonies were observed (Ravimannan, 2016)**.** Collected fungal samples were regularly monitored and compared with reference specimen slides for accurate identification

(Hawsworth, 2017). Photographs of e ach specimen were taken in their natural habitat to aid documentation and ecological understanding (kevin hyde, 2019). Identification was carried out using authenticated identification keys and with the assistance of expert mycologists.

RESULT

During the present survey, three sites within Chhatrapati Sambhajinagar were selected for study: Dr. Babasaheb Ambedkar Marathwada University, Aurangabad Caves, and the Walking Plaza. A total of twenty-five fungal samples were collected from these locations during and after the monsoon season. Specimen slides were prepared, and detailed microscopic observation was conducted. Out of the twenty-five samples, eight were identified as belonging to the Ascomycetes group. Among these, one sample, identified as *Hypoxylon rubiginosum*, was found to be the dominant species (Paul, 2008), and was given particular consideration in the analysis. The first collection site was Dr. Babasaheb Ambedkar Marathwada University and Aurangabad caves. Total 12 and 06 samples were collected respectively. The fungal samples were collected on 14th July 2023, between 2:00 PM and 3:00 PM. Temperature at that time was 22°C. The host plants are *Euphorbia pulcherima, dolichandrone facata.* Among collected 18 samples, The fungal genera and species identified during the study included *Hypoxylon, Xylaria, Trichoderma, Aspergillus, Daldinia*, and *Hypoxylon rubiginosum*. In addition, representatives of nest fungi and gastromycetous fungi were also observed. A total of seven fungal samples were collected from the Walking Plaza site on 3rd September 2023 at 2:45 PM. The samples were found growing on host plants *Nerium oleander* and *Delonix regia.* Temperature was 26°c. 2023 at 12:51pm. Temperature was 27°C. Morphological characteristics of same dominating species of hypoxylon obtained during study was as follow. ***Hypoxylon Rubiginosum***, found at Dr. Babasaheb Ambedkar Marathwada University, Aurangabad Caves and Walking Plaza. There are 12 colonies observed on media. Each colony is of brown in colour but slightly different from the natural habitat. Microscopic analysis of the prepared slides showed numerous ascospores contained within well-developed asci. The morphology of the observed ascospores closely matched those found in their natural habitat. The systematic classification of Hypoxylon Rubiginosum is kingdom fungi, division ascomycota, order xylariales, family hypoxylaceae and genus Hypoxylon (Barnet 1990). This sample of Hypoxylon is collected from walking plaza, Chh. Sambhajinagar. This fungus is commonly found in forested areas, initially appearing as streaks of rust-colored paint that thicken as the stroma develops and perithecial bumps become visible (Photoplate A). The samples were collected during rainy and cloudy weather conditions. They were then isolated and cultured on suitable media, such as Potato Dextrose Agar (PDA). Pure cultures were preserved and maintained for further study (Photoplate B). The fungal colonies were compared to their natural habitat, and microscopic examination of prepared slides was conducted to confirm identification.It is observed that each asci having eight ascospores(Barnett, 2001). Number of paraphysis are also observed in slide (Photoplate C). The ascospores are dark brown, smooth, spindle-shaped, and 19-25 x 4-8µm. The fruiting body is clestothecium and all the asci are spread from the circle.



Photoplate A (*Hypoxylon Rubiginosum natural habit) **B** (Fungal colony Hypoxylon Rubiginosum) **C** (Ascospores* 19-25 x 4-8µm*)*

DISCUSSION

A survey was conducted in Chhatrapati Sambhajinagar, where three sites were studied Dr. Babasaheb Ambedkar Marathwada University, Aurangabad Caves, and Walking Plaza. Out of 25 collected samples, 8 were identified as belonging to the Ascomycetes group. Among these, *Hypoxylon rubiginosum* was the dominant species, found across all three locations. The samples were collected during and immediately following the monsoon season. Total of eighteen samples were collected from Dr. Babasaheb Ambedkar Marathwada University and Aurangabad Caves, with 12 samples from the university and 06 from the caves. The collection was conducted at an ambient temperature of 21°C. The host plants included *Euphorbia pulcherima* and *Dolichandrone facata*. The dominant fungal species identified during the study were *Hypoxylon*, *Xylaria*, *Trichoderma*, and *Daldinia*. On 3rd September 2023, seven samples were collected from the Walking Plaza at 2:45 PM, under a temperature of 24°C. The host plants for these samples were *Nerium oleander* and *Delonix regia***.**

CONCLUSION

Hypoxylon rubiginosum was the dominant species among all the collected samples. The rainy season, with temperatures ranging from 22°C to 26°C, provides optimal conditions for the growth of this fungus. This fungus grows abundantly in wet areas and on dead woods. This species is characterized by its asci, each containing eight ascospores. The ascospores and paraphyses were clearly visible. The colonies appeared brown, although they differed slightly from those found in their natural habitat. Observations under the microscope revealed a large number of ascospores present within the asci.

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