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Study and Identification of Ascomycetes Fungi Hypoxylon from Chhatrapati Sambhajinagar

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Abstract: ***Present study deals with the biodiversity of Ascomycetes Fungi Hypoxylon in chhatrapati Sambhajinagar District. Ascomycetes have a diverse habitat. Ascomycetes are economically important. Regular collection and monitoring of samples were carried out during the study. Identification key and comparative slides were used for identification of fungi. Altogether Fifty-Five samples were collected from different seven sites. Hypoxylon fragiforme, Hypoxylon howeanum species were dominant.***
Keywords: Ascomycetes, hypoxylon, Asci

I. INTRODUCTION

The majority of known fungi belong to the Phylum **Ascomycota**, which is characterized by the formation of an **ascus,** a sac-like structure that contains ascospores (Kamble 2018). A fruiting body called the **ascocarp**. Ascomycetes produce sexual spores, called ascospores, formed in sac-like structures called asci (Tilak, 1968). Present study deals with the biodiversity of Ascomycetes fungi Hypoxylon in district Chhatrapati Sambhajinagar. Dr. S.T.Tilak (1966-1975) who initiated the work on ascomycetous fungi from Maharashtra. Particularly from Marathwada region Ramchandra Rao (1963-1974), Kale (1966), Srinivasulu (1970), Jadhav (2017), Talde (1975), Gaikwad (1974), Dhaware (1977) has worked on it. (Kamble 2024). Present collected data or information about the ascomyectes will be contributed to biodiversity.

II. MATERIAL AND METHOD

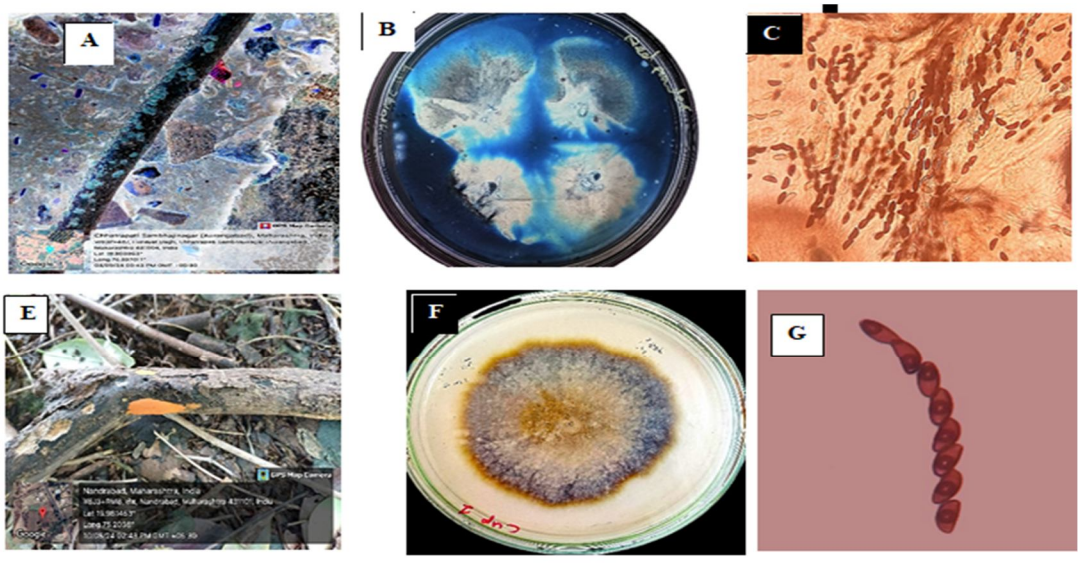
For the collection of Ascomycetes, bundles of envelops, plastic bags or the paper slips and tags are the essential equipment, for the fungi growing on the different substrate like dead stems, leaves and branches. Ascomycetes grows fast in rainy season. Collected samples were inoculated on suitable media Potato Dextrose Agar Media etc. Growing colonies were observed. (Ravimannan, 2016)**.** The slides were compared with the specimen slides. (Fungal Diversity, 2019). Regular collection and monitoring of samples were carried out during the study. Photograph of that specimen in their own habitat or ecosystem were documented. (Fungal diversity 2016)**.** Identification with Authenticated keys, expertise Mycologist and DNA Barcoding is also done.

III. RESULT AND DISCUSSION

During present survey total 07 sites of Chhatrapati Sambhajinagar were studied. From these 07 sites total 48 samples were collected. After making specimen slides and keen observation 19 samples were identified as ascomycetes. Out of 19 samples 2 samples of hypoxylon species were dominant. The dominant species were taking into consideration. i.e. *Hypoxylon fragiforme, Hypoxylon howeanum.* The seven sites were Forest Department, Deogiri College, walking plaza, Salim Ali Lake, sulibhanjan, Himayat bag and NH 52 bypass road of Chhatrapati Sambhajinagar. All Samples were collected during and after monsoon season. Four samples were collected from Forest Department on the date 03 July 2023 and collection time was 12:51 pm on the host plants *Ficus Religiosa, ficus recemosa, delonix regia.* The four samples were xylaria, hypoxylon, daldinia, Trichoderma. Temperature was 24°C. six samples were collected from salim ali lake on the date 20 July 2023 and collection time was 03:52 pm. Temperature was 22°C. The host plants from which samples were collected are *delonix regia, prosopis grandiflora, camerandus indica.* The next collection site is NH 52 bypass road, collected samples from this site are six i.e. xylaria, hypoxylon, daldinia, hypoxylon rubiginosum, aspergillus etc from the host plants *Azardica indica, prosopis grandiflora* on the date 09 August 2024 during the time 3 to 5 pm. Temperature was 22°C with cloudy climate. The collection site was Sulibhanjan and date was 10 august 2024 and time was 02:16, temperature was 22°C. The host plants are *Dalbergia sisso swietenia humilas, butea monesperma, bahunia verigata* on which total twelve samples were collected from the site i.e. hypoxylon, xylaria, Trichoderma, aspergillus, daldinia, nest fungi, gastromycetes fungi, *hypoxylon rubuginosum* etc.

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From walking plaza total six samples were collected in addition to common samples jelly fungi and aspergillus were found on the host plants *Nerium Oleander, delonix regia* on the date 01 September 2023 on the time 03:45 pm. Temperature was 26°C. From Himayat bag on the date 03 September 2024 and collection time was 03:34 pm 07 samples found and it was raining at that time. Temperature was 22°C. The collected samples were hypoxylon rubiginosum, xylaria, aspergillus, Trichoderma, daldinia, xylaria polymorpha from the host plants *ailanthus excelisa, camerandus indica.* seven samples were collected from the site Deogiri college i.e. xylaria, Trichoderma, hypoxylon, xylaria polymorpha, daldinia, aspergillus and jelly fungi from the host plants *Justicia Adhatoda, lantana camera, tinospora cirdiflolia* on 30 September 2023 at 12:51pm. Temperature was 27°C. Morphological charectrristics of same dominating species of hypoxylon obtained during study was as follow ***Hypoxylon fragiforme***, found in forest and woodland area of Dr. Babasaheb Ambedkar Marathwada University, Chhatrapati Sambhajinagar. After growing on suitable media, 06 colonies observed. The colonies are reddish in colour and resembles to the natural habitat. Slides prepared of the colonies and observed septate hyphae, a long tubular filament divided into cellular segments, which is called a hypha and eight spores in each ascus. (Wessels, 1994). The *Hypoxylon fragiforme* is belong from kingdom fungi, division ascomycota. The order is xylariales, family is Xylariaceae and genus is Hypoxylon. This sample of *Hypoxylon* is collected from Himayat Bagh, Chh. Sambhajinagar. It is a commonly found in forest and woodland areas, growing from the bases of rotting or injured tree stumps and decaying wood. Saprobic; in clusters. Typically, on the bark of dead beech. Fruit bodies are grayish-white at first, becoming salmon-pink and then brick-red at maturity and finally brownish-black when overmature. It was rainy season and the weather was cloudy. The samples were isolated and grown on media i.e. PDA, Pure cultures are preserved and maintained for further studies. The fungal colonies were compared to the natural habitat and slides observed under microscope. The ascospores are dark brown, smooth, spindle-shaped. and 20-30 x 5-9µm. The asci are typically with eight spores in each ascus. ***Hypoxylon howeanum*** species collected from Aurangabad Caves, growth of the species is from bases of rotting, injured or decaying wood. 11 colonies were observed on suitable media. The colonies are white in colour and ascospores are observed in slide observation. This sample of xylaria is collected from Bansilal Nagar, station Road, Chhatrapti Sambhajinagar. *Hypoxylon howeanum* is belongs from kingdom fungi, division Ascomycota, order xylariales, family Hypoxylaceae and genus hypoxylon. It is commonly found in forest areas, growing from the bases of rotting or injured, decaying wood. (Kevin D. Hyde; Vol April 2018). It looks like streaks of rust coloured paint then becomes thicker as the stroma develops and perithecial bumps appear. The weather was humid and the wood was dry. The samples were isolated and grown on suitable media i.e. PDA. Pure cultures are preserved and maintained for the further aspects. The fungal colonies were compared to the natural habitat and slides observed under microscope. The ascospores are dark brown, smooth, spindle-shaped, and 18-28 x 4-8µm. The asci are typically with eight spores in each ascus. Open shaped or cup shaped fruiting body i.e. Apothecium Each cavity is filled with asci and number of ascospores

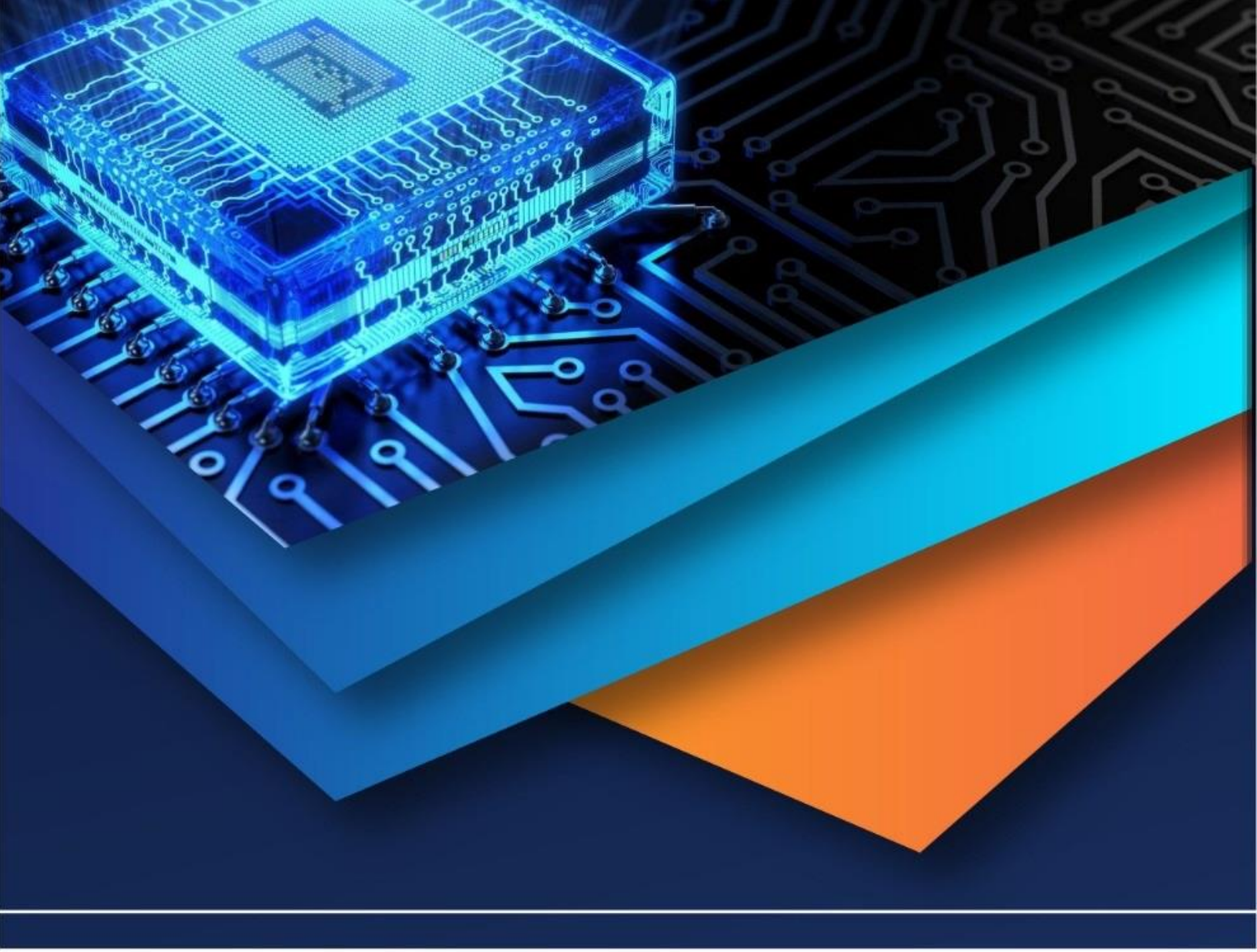


Photoplate A (*Hypoxylon fragiforme Natural habitat*) **B** (Fungal Colony of *Hypoxylon fragiforme*) **C** (Ascospores 20-30 x 5-9µm) ***E*** *(Hypoxylon howeanum natural habit)* ***F*** *(Fungal Colony of Hypoxylon howeanum)* ***G*** *(Ascospores* 18-28 x 4-8µm*)*

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