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Occurrence of Myxomycetes biodiversity from Alibag, (MS) India

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Abstract
Myxomycetes, commonly known as plasmodial slime molds, represent a unique group of fungus-like protists that play an important role in nutrient cycling and decomposition in terrestrial ecosystems. The present study was conducted to investigate the biodiversity, habitat preference, and distribution of myxomycetes in the Alibag region of Raigad District, Maharashtra, India. Alibag is a coastal town situated at 18° 38' 29" N latitude and 72° 52' 20" E longitude, on the west coast of India around 300 km south of Mumbai. The average elevation is 0 meters (0 feet). Alibag being a coastal town with temperature range (29 C- 33 C) with average rainfall 2402 mm provide suitable conditions for the occurrence of myxomycetes.
Field surveys were carried out in forested and semi-natural areas of Alibag during the monsoon and post-monsoon seasons, when environmental conditions are favourable for myxomycete growth. Specimens were collected from various substrates such as decaying wood, leaf litter, bark, soil, and stones. The collected samples were identified based on macroscopic and microscopic characteristics including sporocarp structure, spore morphology, capillitium, and plasmodial features. The findings reveal that the humid tropical climate and rich vegetation of Alibag support a diverse myxomycete community. This study contributes to the limited documentation of myxomycetes from the Konkan region and emphasizes the need for further systematic surveys and culture-based studies to better understand their ecological role and potential biotechnological importance.

Keywords: Myxomycetes, Slime Molds, Capillitium, Sporocarp

Introduction

Methodology

The species were collected in the form of fruiting bodies from different localities of Alibag taluka. The species along with their substratum were placed in plastic boxes for the preservation. The species were air dried and all the important information were placed on the boxes like date and place of collection, name of the species etc. Slides were prepared and species where identified on the basis of their morphological characters. For identification the literature of M. C. Cooke (1877), G. Massee (1892), Macbride and Martin (1934), Lodhi (1934), Lister A (1894), Martin and Alexopoulos (1969) [2] and Lakhanpal and Mukerji (1981) were referred. About 27 different myxomycetes species were collected from various locations. *Hemitrichia serpula* was found to be cosmopolitan with *Cocos nucifera* as substrate. The studies report that species from genera *Stemonitis*, *Physarum*, *Hemitrichia*, *Arcyria* and *Diachea* are common to these region

Annotated list of species

Sr. no.	Name of species	Substratum	Location
1	*Arcyria cinerea* (Bull.) Pers.	On Decaying wood	Kihim, Alibag
2	*Arcyria denudata* (L.) Wettst.	On decaying wood	Kihim, Akshi, Phansad Wild life Sanctury
3	*Cribraria cancellata* (Batsch) Nann-Bremek	On decaying log	Alibag, Kankeshwar forest
4.	*Comatricha nigra*(Pers ex.J.F Gmel) J.Schrot	On decaying wood	J.S.M. College campus, Alibag
5	*Craterium minutum* (Leers.) Fr.	On dead leaves	Siddheswar forest
6	*Diderma hemisphericum* (Bull.) Hornem	On decaying wood	J.S.M. College campus, Alibag
7	*Diachea leucopodia* Bull. Rostaf.	On dead leaves	Alibag, Kankeshwar forest
8	*Diachea subsessilis* Peck.	On dead leaves	Kankeshwar forest
9	*Fuligo septica* (L.) F.H.Wigg	Decaying wood	Alibag, Kankeshwar forest, Chondi
10	*Hemitrichia serpula* (Scop.) Rostaf	On leaves of *Cocos nucifera*	Alibag, Zirad, Akshi, Kihim, Nagaon
11	*Hemitrichia calyculata* (Speg.) Farr.	On Decaying wood	Siddeshawar forest
12	*Lycogala epidendrum* (L.) Fries	On decaying log	Alibag Chondi
13	*Physarum bivalve* Pers.	On dead wood	J.S.M. College campus, Alibag
14	*Physarum globuliferum* (Bull.) Pers.	On decaying wood	Chondi
15	*Physarum melleum* (Berk. & Br.) Massee	On decaying leaves	Kankeshwar forest
16	*Physarella oblonga* (Berk. & Curt.) Morg	Leaves of *Cocos nucifera*	Kihim
17	*Physarum pezizoideum* (Jungh.) Pav. & Lag.	Decaying tree log	R.C.F. Colony, Alibag
18	*Physarum viridae* (Bull.) Pers.	On decaying wood	Chondi
19.	*Stemonitis axifera* (Bull.) Macbr.	Living tree bark	Chondhi village
20	*Stemonitis flavogenita* Jahn.	On tree bark	Alibag

21	*Stemonitis fusca* Rohn.	On decaying wood	Dhavar
22	*Stemonitopsis hyperopta* (Meylon) Nann-Brem	On decaying wood	J.S.M. College campus Alibag
23	*Stemonitis inconspicua* (Nann-Brem.)	On stone	Siddheswar forest
24	*Stemonitis smithii* Macbr.	On decaying wood	Dhavar, Chondi
25	*Stemonitis splendens* Rost.	On decaying wood	Kihim, Kankeshwar forest
26	*Trichia decipens* (Pers.) Macbr	On decaying wood	Alibag, Kankeshwar forest

Results

The present study documented the biodiversity and distribution of myxomycetes from different habitats in the Alibag region of Raigad District, Mharashtra. Field surveys conducted during the monsoon and post-monsoon seasons resulted in the collection of several myxomycete specimens from diverse natural substrates.

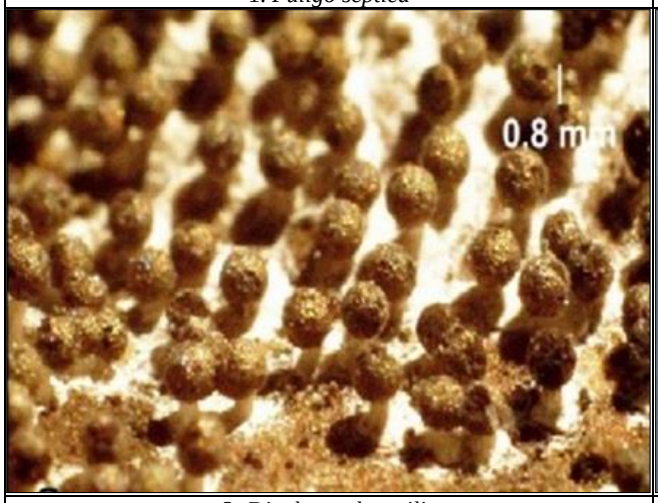
Conclusion

The present study highlights the diversity and ecological significance of myxomycetes in the Alibag region of Raigad District, Maharashtra. The results demonstrate that the humid tropical climate, abundant rainfall, and availability of organic substrates in this coastal area provide favorable conditions for the growth and distribution of myxomycetes. Several genera, including *Fuligo*, *Hemitrichia*, *Physarum*, *Arcyria*, and *Stemonitis*, were recorded from different habitats, indicating considerable species richness.

Decaying wood and leaf litter were found to be the most suitable substrates, supporting the highest number of species, while the occurrence of myxomycetes on uncommon substrates such as stones reflects their adaptability to diverse microhabitats. Seasonal variation was evident, with maximum diversity observed during the monsoon season. This study contributes valuable baseline data on myxomycete biodiversity from the Konkan region, where such organisms remain poorly documented. Further long-term surveys, culture-based studies, and molecular approaches are recommended to better understand the taxonomy, ecology, and potential biotechnological importance of myxomycetes. Overall, the findings emphasize the importance of conserving natural habitats to maintain microbial diversity and ecosystem stability.

1. *Fuligo septica*

2. *Stemonitis smithii*



3. *Diachea subsessilis*

4. *Hemitrichia calyculata*

5. *Arcyria denudata*

6. *Stemonitis flavogenita*

7. *Hemitrichia serpula*

8. *Physarum pezizoideum*

9. *Cribraria cancellata*

10. *Stemonitopsis hyperopta*

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