

## DIVERSITY OF MACRO FUNGI AND MYXOMYCETES AT PALASDARI, MAHARASHTRA

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### ABSTRACT

The authors present here the report of macro fungi and members of Myxomycetes occurring at Palasdari. This is a small village and a common picnic spot. It is also a point of study tours of many school and college students, due to the presence of a forest and a waterfall. The present paper is a report of findings of lower plants, such as fungi along with the still less studied group, Myxomycetes. There are several reports of fungal biodiversity from different places of India, but there is no report about the Palasdari Flora. The fungal specimen observed were *Psathyrella umbonata*, *Polyporus versicolor*, *Hypoxylon fragiforme*, *Auricularia auricula-judae*, *Marasmius rotula* and the members of Myxomycetes were *Physarum bogoriense*, *Physarum polycephalum*. These specimens are economically valuable and possess medicinal value. *Physarum polycephalum* is used in many medical treatments and in the preparation of biological robot. *Auricularia* is important in the remedies of throat ailments. The human interference in these forests is increasing day by day. The construction work of new buildings and roads and carelessness of picnic goers are resulting in spoilage of vegetation. The present paper throws a light on the important and unseen treasures of nature, from this location that needs to be saved.

**KEYWORDS:** Myxomycetes, Palasdhari

### INTRODUCTION

Palasdari is a small village situated 3 km away from Karjat on the central railway on the Karjat-Khopoli line. It is famous for its scenic beauty, lush green rice fields in the monsoon, eye-catching lotuses in the lake, the dam, a Math of Swami Samarth (Akkalkot Swami) and the peak of attraction – the waterfall. The name is derived from *Butea* (Palas) trees in the area, and the word Dari signifies the valley, as it is situated amongst the hills of Sahyadri. The height from mean sea level is 62.75 meters & temperature ranges from 35-40<sup>o</sup> Celsius in summer and around 20<sup>o</sup> Celsius in winter, with high humidity. These weather conditions are suitable for the development of diverse flora and fauna. It is a center for rich biodiversity, with angiosperms, algae, fungi, slime molds, bryophytes and pteridophytes flourishing in harmony with each other. In the monsoon season, this region favors the luxurious growth of diverse types of fungi and members of Myxomycetes. Macrofungi and slime molds, both play critical role in this ecosystem and in maintaining the harmony amongst all other flora and fauna. The debris of fallen branches and leaves of the trees from the dense forest becomes the food and support for the growth of both, the macrofungi and the slime molds. Unfortunately, people visiting the place are with the heads high in the picnic mood; do not understand the importance of these speechless organisms. Some of the macro fungi are attractive and can become the raw material of show pieces. Such materials are exploited by the visitors, leaving no traces of their existence in the forests. The slime molds or the members of Myxomycetes are the tiny creatures that are not seen by the naked eyes or rather can be observed as small dots

to the keen observers in the fields. This becomes a cause that they are unnoticed even by the nature lovers. These organisms are normally trampled upon recklessly as their very existence is neglected. The major problem created by the picnic goers is that they destroy and spoil the habitats of these organisms. This results in stopping the growth and development of such organisms in the next rainy season. It means that, ultimately it results in the loss of a species from its own home place. This has to be stopped, and the awareness about the conservation of the habitats of these species has to be practiced, so as to conserve the biodiversity of this beautiful place.

## MATERIALS AND METHODS

- Frequent visits were made to the location to observe and to collect the specimen.
- Macro fungi were collected in 2% formalin and brought to the laboratory.
- The slime molds were collected in cardboard boxes.
- In the laboratory, the sections of macro fungi were taken, stained in cotton blue and observed under microscope.
- Spores and the arrangement of perithecia (in case of ascomycetes) and basidia (in case of basidiomycetes) were observed.
- The members of Myxomycetes were also processed for slides to observe fruiting bodies and spores.
- The identification of the specimen was done by using Evans and Kibby, 2004; Smith, 1960; Christensen, 1970 and for macro fungi Lakhanpal and Mukherji, 1981; Thind, 1977; Stephensen and Stempen, 2000 for Myxomycetes.

## OBSERVATION AND DISCUSSIONS

Following specimen were collected-

### **Psathyrella Umbonata**

It is a member of Basidiomycetes, belongs to order Agaricales. The cap was 2-4cm wide, first hemispherical later conical to convex, dark translucent brown when moist, pale when dry. The flesh was about 1-2mm thick. The gills were about 20 per cm at the top. The size of the stipe ranged from 5-10cm in length, 2-4mm in thickness, tapering slightly upward, white in color. It was hollow from inside and fibrous and brittle. Spores were brown colored 16-18  $\mu$  long.

### **Polyporus Versicolor**

It is a common Polypore mushroom, member of basidiomycetes and order Agaricales. Its Pileus varies from 2-6cm wide, 2-3mm thick, and narrowed toward the base, sessile & shelf like. It had many narrow bands of gray, brown, white & black color with short hair. Pores 40-60 per cm. It was common on dead woods and branches almost throughout the year.

### **Hypoxyylon Fragiforme**

It is a member belonging to ascomycetes. This specimen was very common species persisting all through the year. The hard crusty fruit bodies were rusty red when fresh & looked densely warted. As they grew older, the color changed to brick red & finally turned completely black. This is a common wood rotting species. The Stromata is hemispherical,

with prethecia raised to 2-5 mm and about 2.5 to 3 cm length. It bears orange colored granules below the surface. Perithecia were ovoid and around 250  $\mu$  in diameter. Asci were around 180  $\mu$  long, 7-10  $\mu$  broad. The ascospores were blackish brown in color and ellipsoid in shape.

### **Auricularia Auricula-Judae**

Commonly known as Jew's ear or jelly ear or wood ear, it is also a member of Basidiomycetes, belonging to order Auriculariales. It was velvety brown to dark brown to purplish in color on the upper side. Inside the ear was greyish & often deeply veined. Jelly ear was found in clusters on living or dead branches. The size ranged from 3-5 cm in length and 1.5 to 3 cm wide. The ears were observed as incurved dark brown structures after the rainy season. Spores were elongated white to creamish in color.

### **Marasmius Rotula**

It is a fleshy, beautiful mushroom; a member of Basidiomycetes belongs to order Agaricales. The cap was 5-12mm wide, hemispherical with a small depression in the center of the cap just above the point of attachment. Its surface was white, with radial furrows extending from the centre to margins. The gills were white, distinctly separate from one another attached to a collar or ring near the stem. Stem was 3-6cm log, 1 mm thick, hollow, shiny glabrous. It was found growing in groups of several dozen on litter. Spores were 1.5-2 ocular divisions (on 40X).

### **Physarum Bogoriense**

It is a specimen belonging to Myxomycetes. It was found on dead leaves, and twigs of *Woodfordia fruticosa*. Plasmodium required high humidity, shady places for its growth. Sporangia were stalked in cluster, white sub-globose, collumella absent, capillitium dense, with nodes and internodes. Spore mass is white with transmitted light, globose to oval, warted densely.

### **Physarum Polycephalum**

This was another specimen of Myxomycetes found on dead leaves. Though the fructifications were not studied, it could be identified on the basis of its shape of fructification. The name '*Polycephalum*' denotes many heads.

A number of mycologists in India have studied biodiversity of macro fungi in different parts of the Nation. Bhatt *et al* (2014), in the region of Adwani forests of Garwal, Himalaya, Uttarakhand; Thite *et al* (1976), in Maharashtra; Heywood (2010), from Amarawati region has contributed to studies of fungal diversity. These studies are not merely documentations, but are important indicators of shifts in fungal populations of these regions that might have taken place due to climatic and anthropogenic changes. The present study is also an attempt in this direction.

## **CONCLUSIONS**

The forest of Palasdhari near the waterfall is rich in evergreen as well as deciduous flora. The leaves and branches of these plants fall on the forest ground and create organic debris below the plants in the shade. This area then becomes the site of the development of diverse types of macro fungi and the slime molds. But, due to encroachment of human beings as trekkers and the people visiting for the picnic, this natural habitat is getting disturbed, and it may be ruined or lost completely in the future. It is a must at this stage to study and protect this biodiversity.

There is an urgent need to save this forest to preserve the biodiversity in the area.

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## REFERENCES

1. Bhatt, R. P., Vishwakarma, M. P., Singh, U. and S. Joshi. (2014). Macro fungal Diversity in Adwani Forest of Garwal Himalaya, Uttarakhand. *Journal of Mycology and Plant Pathology*. **44 (4)**: 417-431.
2. Christensen, C. M. (1960). Common Fleшы Fungi. Burgess Publishing Company.
3. Evans, S. and G. Kibby. (2004). Pocket Nature Fungi. Dorling Kindersley.
4. Heywood, G. B. (2010). Wild Mushroom Flora of Amaravati Region, Maharashtra, India. *Journal of Mycology and Plant Pathology*. 40(3): 441-443.
5. Lakhanpal, T.N. and Mukherji, K.G. (1982), Taxonomy of the Indian Myxomycetes, 530.
6. Sathe, A. V. and S. Deshpande. (1980). Agaricales (Mushrooms) of Maharashtra State. Monograph No. 1:9-42. Maharashtra Association for Cultivation of Science, Pune, India.
7. Smith, A. H. (1960). The Mushroom Hunter's Guide. Ann Arbor. The University of Michigan Press.
8. Stephensen, S. L. and H. Stempem. (2000). Myxomycetes: A Handbook of Slime Molds. Timber Press. Portland, Oregon.
9. Thind, K. S. (1977), "The Myxomycetes of India" Publication Gerwal S. S. pp 1-451.
10. Thite, A. N.; Patil, M. S. and T. N. More. (1976). Some Fleшы Fungi from Maharashtra. *Botanique*. **7 (2-3)**: 77-88.

## APPENDICES

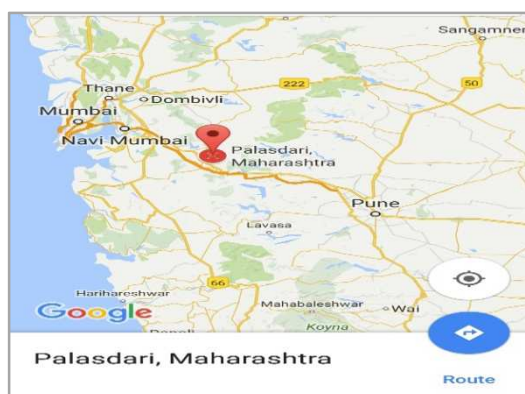


Figure 1



*Hypoxylon fragiformi*



*Auricularia auricular-judae*

Figure 2



*Marasmius rotula*



*Physarum polycephalum*

Figure 3



*Physarum bogoriens*



*Polyporus versicolor*

Figure 4



*Psathyrella umbonata*

Figure 5

