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Study of Macro-Fungal diversity of Mawal Area of Pune District, Maharashtra, India

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Abstract:

Macro-fungi are the fungal species that produce fruiting bodies visible to naked eyes and occurs widely in the rainy season. The macro-fungi plays important role in nutrient dynamics, soil health, as pollution indicator, species mutualism and its interaction and even has its economic role in carbon cycling and the mobilization of nitrogen and phosphorous. Present investigation emphasizes on study of macro-fungi from Mawal area of Pune district of Maharashtra. During the study frequent field visits, enlisting of genera and their species, identification and photography has done. In this study total 58 fungal species belonging to 33 genera, 02 sub-divisions, 10 orders and 20 families were reported. The contribution of Basidiomycotina fungi is maximum in comparison with Ascomycotina.

Keywords- *Macro-fungal Diversity, fruiting bodies,*

Introduction

Fungi are the most significant organism in the world. Which have an impact on human beings and population-related activities in addition to playing a crucial role in ecosystem. Fungi are crucial to the survival of many companies of organisms. cholesterol, and subjects of prize-winning research. (Blackwell, 2011) They are used withinside the bioremediation manner of commercial waste and withinside the accumulation of heavy metals from the environment . According to Hawksworth there are about 1.five million species of fungi determined at the Earth. (Sarbhoy et al., (1996) reported more than 27000 fungal species throughout the India. The number of mushroom species alone, recorded in the world were 41,000 of which approximately 850 species were recorded from India (Deshmukh, 2004) mostly belonging to gilled mushrooms. The macro- fungi having large fructifications, visible to naked eyes and include large observable spore bearing structure. They have worldwide in distribution and can grow in wide range of habitats and abundant in spring and autumn due to favorable climate and low in hot and dry seasons (Pilz and Molina, 2001). Macro- fungi are rich in mineral nutrients.

Materials and methods

Study area and samplings

Different localities in and around mawal area of pune district were visited, especially during the monsoon as well as winter & summer Season. These included forested hills of Ghoravadeshwr , Durga tekadi andchaurai devi temple area, Pimpri chinchwad area. In each locality, fungi were collected

opportunistically along random paths. Using a scalpel, the mushrooms were removed from the ground or host organism. General habit and habitat, colour, smell (if any), host plant, surrounding vegetation etc. were noted in the field. Polypores were removed from the host with the help of hammer and a sharp knife and were kept on a clean polythene bag. Puffballs have been cautiously preserved in a easy plastic bag. The puffballs were also dried and stinkhorns were wet preserved in 2-5% formalin solution. Thin sections of fresh specimens were observed under the microscope after staining with cotton blue stain and mounting in the lactophenol. The polypore sections were first treated with 5% KOH solution and then mounted in lactophenol on a clean glass slide with a cover glass after intensive teasing and staining with cotton blue.

Identification of samples and recording of data

Field observations of fungi were recorded as incidence data once per sampling event. Some samples from fungi could not be identified in the field were collected and brought to the laboratory for determination. For each fungal record, notes were taken on taxonomic classification, substrate or host, characteristic macro morphological features. These data as well as photographs of fungi taken in the field and in the laboratory helped to assign species names or morphospecies concepts consistently over the year.

table.1 checklist to macro-fungi from mawal area

Sr. No.	Name of the Fungi	Family	Order	Class	Sub Division
1	Ramaria formosa	Gomphaceae	Gomphales	Agaricomycete	Basidiomycotina
2	Daldinia concentric	Xylariaceae	Xylariales	Sordariomycetes	Ascomycotina
3	Xylaria hypoxylon	Xylariaceae	Xylariales	Sordariomycetes	Ascomycotina
4	Hypoxylon coccineum	Xylariaceae	Xylariales	Sordariomycetes	Ascomycotina
5	**Peziza** domiciliana	Pezizaceae	Pezizaceales	Pezizomycetes	Ascomycotina
6	Ascobolus scatigenus	Ascobolaceae	Pezizaceales	Pezizomycetes	Ascomycotina
7	Ganoderma lucidum	Ganodermataceae	Polyporales	Agaricomycete	Basidiomycotina
8	Ganoderma sessile	Ganodermataceae	Polyporales	Agaricomycete	Basidiomycotina
9	Ganoderma resinaceum	Ganodermataceae	Polyporales	Agaricomycete	Basidiomycotina
10	Pleurotus ostreatus	Pleurotaceae	Agaricales	Agaricomycete	Basidiomycotina
11	Volvariella argentina	Pluteaceae	Agaricales	Agaricomycete	Basidiomycotina
12	Leucocoprinus badami	Agaricaceae	Agaricales	Agaricomycete	Basidiomycotina
13	Lepiota aspera	Agaricaceae	Agaricales	Agaricomycete	Basidiomycotina
14	Lepiota brunneoincarnata	Agaricaceae	Agaricales	Agaricomycete	Basidiomycotina
15	Lepiota magnispora	Agaricaceae	Agaricales	Agaricomycete	Basidiomycotina
16	Lepiota procera	Agaricaceae	Agaricales	Agaricomycete	Basidiomycotina
17	Lycoperdon umbrinum	Agaricaceae	Agaricales	Agaricomycete	Basidiomycotina
18	Lycoperdon utriforme	Agaricaceae	Agaricales	Agaricomycete	Basidiomycotina

19	Lycoperdon perlatum	Agaricaceae	Agaricales	Agaricomycete	Basidiomycotina
20	Lycoperdon pyriforme	Agaricaceae	Agaricales	Agaricomycete	Basidiomycotina
21	Agaricus augustus	Agaricaceae	Agaricales	Agaricomycete	Basidiomycotina
22	Agaricus californicus	Agaricaceae	Agaricales	Agaricomycete	Basidiomycotina
23	Agaricus subrutilescens	Agaricaceae	Agaricales	Agaricomycete	Basidiomycotina
24	Agaricus porphyrocephalus	Agaricaceae	Agaricales	Agaricomycete	Basidiomycotina
25	Agaricus diminutivus	Agaricaceae	Agaricales	Agaricomycete	Basidiomycotina
26	Agaricus lutosus	Agaricaceae	Agaricales	Agaricomycete	Basidiomycotina
27	Coprinus comatus	Agaricaceae	Agaricales	Agaricomycete	Basidiomycotina
28	Coprinus logapus	Agaricaceae	Agaricales	Agaricomycete	Basidiomycotina
29	Coprinus hiascens	Agaricaceae	Agaricales	Agaricomycete	Basidiomycotina
30	Coprinus fimetarius	Agaricaceae	Agaricales	Agaricomycete	Basidiomycotina
31	Coprinus calyptratus	Agaricaceae	Agaricales	Agaricomycete	Basidiomycotina
32	Coprinus stercoreus	Agaricaceae	Agaricales	Agaricomycete	Basidiomycotina
33	Coprinus patouilardii	Agaricaceae	Agaricales	Agaricomycete	Basidiomycotina
34	Coprinus plicatilis	Agaricaceae	Agaricales	Agaricomycete	Basidiomycotina
35	Marasmius bulliardii	Marasmiaceae	Agaricales	Agaricomycete	Basidiomycotina
36	Cyathus striatus	Nidulariaceae	Agaricales	Agaricomycete	Basidiomycotina
37	Clavaria amoena	Clavariaceae	Agaricales	Agaricomycete	Basidiomycotina
38	Clavaria pyxidate	Clavariaceae	Agaricales	Agaricomycete	Basidiomycotina
39	Armillaria tabescens	Physalacriaceae	Agaricales	Agaricomycete	Basidiomycotina
40	Termitomyces microcarpus	Lyophyllaceae	Agaricales	Agaricomycete	Basidiomycotina
41	Polyporus arcularius	Polyporaceae	Polyporales	Agaricomycete	Basidiomycotina
42	Polyporus squamosus	Polyporaceae	Polyporales	Agaricomycete	Basidiomycotina
43	Polyporus umbellatus	Polyporaceae	Polyporales	Agaricomycete	Basidiomycotina
44	Trametes hirsuta	Polyporaceae	Polyporales	Agaricomycete	Basidiomycotina
45	Cantharellus cibarius	Cantharellaceae	Cantharellales	Agaricomycete	Basidiomycotina
46	Hydnum repandum	Hydnaceae	Cantharellales	Agaricomycete	Basidiomycotina
47	Phallus sp.	Phallaceae	Phallales	Agaricomycete	Basidiomycotina
48	Hexagonia tenuis	Polyporaceae	Polyporales	Agaricomycete	Basidiomycotina
49	Lentinus tigrinus	Polyporaceae	Polyporales	Agaricomycete	Basidiomycotina
50	Tyromyces stipticus	Polyporaceae	Polyporales	Agaricomycete	Basidiomycotina
51	Loweporus sp.	Polyporaceae	Polyporales	Agaricomycete	Basidiomycotina

52	Daedalea quercina	Fomitopsidaceae	Polyporales	Agaricomycete	Basidiomycotina
53	Fomitopsis pinicola	Fomitopsidaceae	Polyporales	Agaricomycete	Basidiomycotina
54	Fomitopsis feei	Fomitopsidaceae	Polyporales	Agaricomycete	Basidiomycotina
55	Geastrum saccatum	Geastraceae	Geastrales	Agaricomycete	Basidiomycotina
56	Auricularia auricula	Auriculariaceae	Auriculariales	Agaricomycete	Basidiomycotina
57	Auricularia americana	Auriculariaceae	Auriculariales	Agaricomycete	Basidiomycotina
58	Auricularia polytricha	Auriculariaceae	Auriculariales	Agaricomycete	Basidiomycotina

Results

In this study the contribution of Basidiomycotina fungi is maximum in comparison with Ascomycotina. During the entire survey 58 fungal species belonging to 33 genera, 02 sub-divisions, 10 orders and 20 families were reported. 9 % genera could only be identified at higher taxonomic levels due to the absence of suitable characteristics for identification. After three years of monthly sampling, a fungal record was obtained.

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