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WOOD DECAYING FUNGI FROM SOYGAON TEHSIL, DISTRICT AURANGABAD (M.S.) INDIA

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ABSTRACT

In the present investigation, ninety-three specimens of macro-fungi were collected from different areas of Soygaon Tehsil, District Aurangabad (M.S.) India, from that twenty-seven specimens were identified. Based on morphological and microscopic characteristics which belong to twenty-two genera and twenty-seven species. It was observed that *Auricularia mesenterica, Auricularia nigricans, Cellulariella acuta, Coriolopsis brunneoleuca, Daldinia concentrica, Favolus grammocephalus, Favolus roseus, Flavodonf lavus, Earliella scabrosa Hypoxylon haematostroma, Lopharia cinerascens, Naviporus floccosus, Phellinus badius, Schizophyllum commune, Scytinostroma duriusculum, Trametes cingulata,* and *Truncospora tephropora* were most abundantly found while *Amylosporus campbellii, Auricularia delicata, Fomitiporia* sp.1 *Ganoderma mediosinense, Gymnopilus pampeanus, Leucocoprinus cepistipes, Phellinus mori, Pycnoporus sanguineus, Trametes ellipsospora,* and *Xylaria polymorpha* are rarely observed macro-fungi.
Keywords : Macro-fungi, Microscopic, Morphological, Saprophytic, Sporocarps.

Introduction

Wood-decaying Macro-fungi are distinguished by their fruiting structures (sporocarps) visible to the naked eyes. Most macro-fungi belong to the Phyla Basidiomycota and Ascomycota and their fruiting bodies vary in shape, size, colour, texture, and odour. Macro-fungi are important component of the forest ecosystems and play a major role in ecosystem dynamics, such as litter decomposition, nutrient cycling and transport. Most of the macro-fungi are saprobes and occur on living trees, wood logs, humus, and plant litter, among others. The saprophytic members constitute major recyclers of nutrients, they are known to break down the lignocelluloses and thus help in litter degradation, converting large molecular complex into simpler compounds. The activities of these macro-fungi aid in return of carbon, hydrogen, nitrogen and minerals back into the ecosystem to be utilized by plants and other organisms. Brown-rot fungi degrade cellulose in an unusual manner that differ from cellulolytic organism, they causes rapid de-polymerization and thus are very destructive (Cowling, 1961). Attack on cell wall by brown-rot fungi, similar to white-rot, is predominantly initiated by hyphae growing in lumen in contact with tertiary wall (Liese, 1970; Wilcox, 1970). Lignin is degraded by white-rot fungi and this work has been extensively reviewed (Kirk and Highley, 1973). Two new species of Polyporaceae recorded (Bose, 1921). New records of Hymenomycetes from India (Bakshi, 1958). New record of Polypores from India (Sharma, 1999). Taxonomy and Diversity *of Ganoderma* from the Western parts of Maharashtra (Bhosle *et al.,* 2010). Checklist of Aphyllophorales diversity data from Western Ghats of Maharashtra state India (Ranadive *et al.*, 2011). Aphyllophorales from Parbhani and Nanded (Raibhole and Mali 2013). Diversity of Aphyllophorales from Latur district, Maharashtra (Chouse and Mali, 2020). From the Jalgaon district, various regions of the forest area five species of *Xylaria* were reported (Firdousi and Khan, 2021). Fourteen genera and fifteen species of wood-decaying fungi from Dr. BAMU, campus Aurangabad (Gore and Mali, 2021).

Materials and Methods

The survey and collection of wood-decaying fungi were done from July 2016 to November 2019, 20-25 days after heavy rainfall from different localities of the Soygaon Tehsil, Aurangabad district. The basidiocarp were photographed at site and all important morphological characters were noted according to hosts name, locality, collection number, collection date, color, pilear surface, hymenial surface, and the dimension of basidiocarp. All specimens were identified according to macroscopic and microscopic characteristics with respect to appropriate literature (Gilbertson & Ryvarden 1986; Nunez & Ryvarden 2000). Preserved specimens were kept in the brown paper packet as per international mycological herbarium guidelines. The freehand thin section cutting of basidiocarp done with the help of sharp razor blades, stained and studied in 10% KOH, Lacto phenol, and Melzer's reagent, and microscopic observations were made under 40X and 100X Magnification under a compound light microscope in a laboratory.

Results and Discussion

In the present study, twenty-seven species of wood-decaying fungi were identified according to the macroscopic

and microscopic character (Photo plate 1), collected from Soygaon Tehsil, Aurangabad district (M.S.) India, have been summarized below.

***Amylosporus campbellii* (Berk.) Ryv.**

Basidiocarp annual, pileate, sessile to stipitate, 3.2-12.9 × 2.9-8.6 × 1.2-3.4 cm, thick at base, becoming buff to pale brownish at maturity. Upper surface moist, cream colored to buff, with darker spots to cinnamon brown on drying. Lower surface cream to white, pores 2-4 per mm, round to angular. Hyphal system dimitic, generative hyphae thin-walled, 3.5-12 µm wide, skeletal hyphae thick-walled, 2.5-6.5 µm wide, gloeoplerous hyphae present. Basidiaclavate, 5.5-12×2.5-4 µm. Spores hyaline 4-5.5 × 2.5-4 µm.

Collection examined: INDIA; Maharashtra, Marathwada, Aurangabad district, Taluka Soygaon, Soygaon forest, 09/11/2019,on the roots on living tree *Wrightia tinctoria* R.Br, 523m, 20°28'33" N75°23'56" E,VUG/VPM-776, *Vijay Gore*.

***Auricularia delicate* (Mont.exFr.) Henn.**

Basidiocarp annual, lignicolous, jelly like semi-transperent, soft when fresh, brittle on drying. Pileus 4.3 × 3.7 cm, up to 0.3 cm thick, ear like. Upper surface smooth to slightly sulcate, orange brown to reddish brown when young, almost reddish brown to brownish black on drying. Lower surface smooth, sulcate to vein like, creamy orange to orange brown. Hyphal system monomitic, generative hyphae 2.4–3 µm wide, clamped, Spores 11–13 × 4.5–5 µm, allantoid.

Collection examined: INDIA; Maharashtra, Marathwada, Aurangabad district, Taluka Soygaon, Gondegaon, 16/10/2016,onthe wood log of *Acacia nilotica* (L) Delile,321m, 20°33'43" N75°20'37" E,VUG/VPM-598,*Vijay Gore*.

***Auricularia mesenterica* (Dicks.) Pers.**

Basidiocarp annual, resupinate to effused reflex, pileate, 0.5–10.9 × 0.5–4.8 cm, up to 0.2 cm thick, ear-shaped. Upper surface, hairy, yellowish-brown to greyish brown. Lower surface smooth to slightly wrinkled, bluish to purplish brown with a whitish bloom. Hairs thick-walled, up to 3 mm long. Hyphal system monomitic, generative hyphae 2.5–5 µm wide, Spores hyaline, reniform to allantoids, 11.5–13.5 × 5–5.5µm.

Collection examined: INDIA; Maharashtra, Marathwada, Aurangabad district, Taluka Soygaon, Tidka, 16/10/2016, on wood log of *Terminalia bellirica* (Gaertn.) Roxb, 333m, 20°30' 27" N75°23'16" E,VUG/VPM-580,*Vijay Gore*.

***Auricularia nigricans* (Sw.) Birkebak, Looney& Sancher–Garcia.**

Basidiocarp annual, pileate, 0.5-2.1 × 0.5-1.6 cm, up to 0.2 cm thick, lossely attached with small tapered stalk, ear-shaped, jelly like. Upper surface hairy. Lower surface smooth. Hyphal system monomitic, generative hyphae 2.5–4.5 µm wide, Spores 13.5-15×4-5 µm, cylindrical to allantoid.

Collection examined: INDIA; Maharashtra, Marathwada, Aurangabad district, Taluka Soygaon, Tidka, 16/10/2016,on wood log of *Terminalia bellirica* (Gaertn.) Roxb, 333m20°30'27" N75°23'16" E, VUG/VPM-581,*Vijay Gore*.

***Cellulariella acuta* (Berk.)Zmitr. & Malysheva**

Basidiocarp annual, rarely perennial, pileate, 7.3-12.4 × 5.6-8.9 × 0.9-2.1 cm thick at base, semicircular to flabelliform. Upper surface azonate to concentrically zonate, weakly sulcate, cream to pale ochraceous to bay coloured. Lower surface poroid, mostly angular to maize like to lamellae, pores 1-4 mm wide, cream to buff to tan colours, mostly with a yellowish tint. Hyphal system trimitic, generative hyphae hyaline, 1.5-3 µm wide, skeletal hyphae thin-walled, 3.5-6 µm wide, binding hyphae 2.5-4 µm wide. Spores cylindrical, 6-7.5× 2-3 µm, smooth, thin-walled.

Collection examined: INDIA; Maharashtra, Marathwada, Aurangabad district, Taluka Soygaon, Vakdi, 16/10/2016, on wood log of *Acacia nilotica* (L.) Delile, 303m, 20°32'20" N75°21'57" E, VUG/VPM-591,*Vijay Gore*.

***Coriolopsis brunneo-leuca* (Berk.) Ryv.**

Basidiocarps annual, pileate, almost resupinate to effuse reflexed. 1.5-18.4 × 1-9.1× 0.3-0.7 cm thick at base. Upper surface concentrically sulcate or zoned but also radially striate, the tomentum becomes paler, grayish brown to brown then becomes blackish. Lower surface ochraceous to pale brown, pores round to angular, mostly 2-3 per mm. Hyphal system trimitic, generative hyphae 1-3 µmwide, skeletal hyphae thick-walled, 3.5-5 µm wide, binding hyphae 2.5-4 µm wide. Basidia clavate, 25-30 5.5-6 µm wide. Spores cylindrical, hyaline, thin-walled, 9-12 x 2.5-4 µm.

Collection examined: INDIA; Maharashtra, Marathwada, Aurangabad district, Taluka Soygaon, Tidka, 16/10/2016,on wood log of *Azadirachta indica* A.Juss, 334m, 20°29'58" N75°23'25" E, VUG/VPM-573,*Vijay Gore*.

***Daldinia concentrica* (Bolton) Ces. & De Not.**

Basidiocarp annual, hemispherical to variously shaped cushions 1.5-2.9×1.4-2.8 cm diam., reddish-brown to purplish brown to black. The outer surface is smooth, dotted with minute pores formed by the ostiole of the perithecia. In a vertical section, fruiting body show distinct concentric zonation, with fibrous hyphal tissues. Perithecia crowded in a single layer just below the outer crust, possess a conical neck. Asci cylindrical, 80-150 × 8-12µm, with a long stalk. Ascopores 13-16.5 × 6.5-9.5 µm.

Collection examined: INDIA; Maharashtra, Marathwada, Aurangabad district, Taluka Soygaon, Nimbayati Phata,09/11/2019,on the main trunk of living tree *Butea monosperma* (Lam.) Taub, 335m, 20°32'55" N75°31'26" E, VUG/VPM-784,*Vijay Gore*.

***Earliella scabrosa* (Pers.) Gilb. & Ryvarden**

Basidiocarp annual, resupinate, effused-reflexed to pileate 4.9-44.8 × 3.9-11.6 × 0.3-0.6 cm, thick at base. Upper surface glabrous, zoned, white to cream, reddish black cuticle starting from the base, Lower surface white to cork coloured, pores angular to semi-daedaleoid, 2-3 per mm. Hyphal system trimitic, generative hyphae thin-walled, 1.5-3 µm wide, skeletal hyphae thick-walled, hyaline, 3.5-5 µm wide, binding hyphae 3.5-5 µm wide. Basidia clavate, 16-20 × 4-5 µm wide. Spores cylindrical to oblong-ellipsoid, thin-walled, hyaline, 7-9.5 × 3-4 µm.

Collection examined: INDIA; Maharashtra, Marathwada, Aurangabad district, Taluka Soygoan, Ambheda, 09/11/19, on the dead fallen tree of *Butea*

monosperma (Lam.) Taub, 361m,20°35'39" N 75°35'39" E,VUG/VPM- 788,*VijayGore*.

***Favolus grammocephalus* (Berk.) Imazeki**

Basidiocarp annual, pileate, , 11.3-14.9 × 10.4-12.8 × 0.3-0.5 cm, thick at base, laterally attached with a stipe, Upper surface ochraceous to pale brown. Lower surface, ochraceous to straw coloured to pale brown, pores thin-walled and angular, 3-5 per mm. Hyphal system dimitic, generative hyphae 2.5-4 µm wide, binding hyphae thick-walled, up to 10 µm thick at the main trunk. Spores oblong-ellipsoid 5-7 x 2-3 µm.

Collection examined: INDIA; Maharashtra, Marathwada, Aurangabad district, Taluka Soygaon, Vakdi,16/10/2016,on the wood log of *Ficus amplissima* Sm, 295m, 20°32'21" N75°21'52" E,VUG/VPM-592,*Vijay Gore*.

***Favolus roseus* Lloyd.**

Basidiocarps annual, pileate, 1.1-6.6 × 0.9-5.4 × 0.3-0.5 cm, thick at base, Upper surface fiabelliform, spathulate to semicircular, white when fresh, cream or pale ochraceous when dry, glabrous. Lower surface pores hexagonal to radially elongated, 1-3 per mm, white to very pale ochraceous. Hyphal system dimitic, generative hyphae hyaline, 2.5-3.5 µm wide, skeletal hyphae thick-walled, hyaline. Basidia clavate, 25-30 × 4.5-6 µm. Spores cylindrical, 9.5-12 × 2-3 µm, hyaline, thin-walled.

Collection examined: INDIA; Maharashtra, Marathwada, Aurangabad district, Taluka Soygaon, Kankarada, 09/11/2019,on the wood log of *Acacia nilotica* (L.) Delile, 333m, 20°35'45" N75°35'03" E,VUG/VPM-787,*Vijay Gore*.

***Flavodon flavus* (Klotzsch) Ryvarden.**

Basidiocarp annual, pileate, resupinate to effused reflex, 0.5-17.2 × 0.5-9.1 × 0.2-0.5 cm, thick at the base, Upper surface azonate to concentric zones, finely hispid, glabrous, greyish yellow to yellow to pale yellow. Lower surface poroid, 1-2 per mm, hydnoid with irregular teeth or dentate lamellate. sulphurous yellow, yellowish brown and with age fading to ochraceous. Hyphal system dimitic, generative hyphae hyaline, 2.5-4 um wide, skeletal hyphae hyaline, thick-walled, up to 7 um wide. Spores broadly ellipsoid, smooth, hyaline, thin-walled, 5-6.5 x 3-4.5 um.

Collection examined: INDIA; Maharashtra, Marathwada, Aurangabad district, Taluka Soygaon, Tidka,09/11/2019,on the wood log of *Azadirachta indica* A. Juss. 330m, 20°30'26"N 75°23'16" E,VUG/VPM-777,*Vijay Gore*.

***Fomitiporia* sp1.**

Basidiocarp perennial, sessile, 9 × 5.5 × 5.4 cm, thick at basewoody hard when fresh, corky hard on drying. Upper surface smooth, glabrous, zonate, sulcate, yellowish brown when young, soon brownish black. Lower surface poroid,round, pores 5-7 per mm, yellowish brown to reddish brown. Hyphal system dimitic; generative hyphae 1.5-3 µm wide. skeletal hyphae 4-6 wide, thick-walled Setae 17-30 × 5.5-7µm, ventricose, thick-walled, smooth, septate at base, dark brown. Basidia 12–13 ×5–6.5µm, broadly clavate. Spores 4.2-5.8×3.8-5.1µm, broadly ellipsoid to sub globose.

Collection examined: INDIA; Maharashtra, Marathwada, Aurangabad district, Taluka Soygaon, Soygaon forest, 16/10/2016, on the living tree at main trunk of *Albizia lebbeck* (L.) Benth., 559 m, 20°28'11" N75°23'48"E,VUG/VPM-571,*Vijay Gore*.

***Ganoderma mediosinense* J.D. Zhao**

Basidiocarp annual, pileate, 13.3 × 10.8 × 2.9 cm, thick at base leathery when fresh, corky to woody on drying. Upper sterile surface sulcate, weakly zonate, glabrous, reddish brown turn to coca brown. Lower surface poroid round, pores 3-4 per mm, creamy when young to pale brown when old. Hyphal system trimitic, generative hyphae 1.5-3 µm wide, skeletal hyphae 2.5-5 µm wide, binding hyphae 1.5-3 µm wide. Basidia clavate, 4-sterigmate, clamped at base. Spores 8.5-10 × 5-6 µm, ovoid to ellipsoid.

Collection examined: INDIA; Maharashtra, Marathwada, Aurangabad district, Taluka Soygaon, Tidka, 16/10/2016, on the wood log of *Azadirachta indica* A. Juss, 315m, 20°31'18" N75°22'52"E,VUG/VPM-583,*Vijay Gore*.

***Gymnopilus pampeanus* (Speg.) Singer.**

Basidiocarps annual, 2.6-3.8 cm diam., convex when young, becoming plane then depressed at the center. depression often deepens to the stipe, surface deep yellow when young, grayish orange at maturity. Gills free, 13-16 per cm, sinuate to adanate, golden yellow. Stipe 4.5-5.3 × 0.3-0.9 cm, pale yellowish-white, on bruising change to pale reddish-brown. Basidia 22-24 × 6.5-8 µm wide. Spores 6.5-8 × 4-5 µm, broadly ellipsoid.

Collection examined: INDIA; Maharashtra, Marathwada, Aurangabad district, Taluka Soygaon, Gondegaon,16/10/2016,on the wood log of *Acacia nilotica* (L) Delile, 320m, 20°33'38"N75°20'56"E, VUG/VPM-595,*Vijay Gore*.

***Hypoxylon haematostroma* Mont**

Basidiocarp annual, resupinate, hard, 0.5-14.2 × 0.4-4.9 × 0.1-0.2 cm. Fertile surface minutely papillate, cinnabar red to blood red when fresh, reddish when mature. Perithecia long tubular 950-2300 × 250-600 µm. Ostioles are lower than stromatal surface. Asci160-200×6-9µm, broadly cylindrical. Spore15.5-18×5.5-8.5µm, elliptic-fusiform.

Collection examined: INDIA; Maharashtra, Marathwada, Aurangabad district, Taluka Soygaon, Soygaon forest,07/09/2014,on the dried tree of *Ficus benghalensis* L, 619m, 20°27'23" N75°23'59"E, VUG/VPM-85,*Vijay Gore*.

***Lopharia cinerascens* (Schw.) Cunn.**

Basidiocarp annual, often resupinate to effused reflexed 1.5-14.1 × 1.2 × 6.3 × 0.1-0.3 cm. Upper surface strigose hairy, brownish grey to greyish black, concentrically sulcate. Lower surface smooth, cinnamon to violaceous brown. Hyphal system dimitic, generative hyphae up to 4 µm wide, skeletal hyphae up to 5 µm wide, thick-walled. Basidia 13-20 × 4.5-6 µm wide, 4-spored. Spores 10-13× 6.5-7 µm, broadly ellipsoid.

Collection examined: INDIA; Maharashtra, Marathwada, Aurangabad district, Taluka Soygaon, Tidka16/10/2016, on the wood log of *Acacia nilotica* (L.) Delile, 333m, 20°30'27" N75°23'16"E, VUG/VPM-578,*Vijay Gore*.

***Leucocoprinus cepistipes* (Sowerby) Pat.**

Basidiocarp annual, lignicolous, fleshy fibrous and tough when fresh. Pileus 2.1–3.2 cm in diameter, obovoid then conical, obtusely umbonate, finally comanulate or expanded, truncate at centre, chalky white with pale pink tints. Gills free 15–18 per cm, rather crowded, creamy white Context thin, soft, solid but becoming hallow with maturity, chalky white. Stalk3.5–5.6× 0.4–0.8cm. Annulus present. Hyphal system monomitic; generative hyphae 3.5–5 µm wide, Spores 7.5–10 × 5–7 µm, ovoid.

Collection examined: INDIA; Maharashtra, Marathwada, Aurangabad district, Taluka Soygaon, Soygaon forest, 09/11/2019,onthe living tree at main trunk at base of *Terminalia bellirica* (Gaertn.) Roxb, 423m, 20°28'30" N75°23'54" E,VUG/VPM-775,*Vijay Gore*.

***Naviporus floccosus* (Bres.) Ryvarden**

Basidiocarp annual, pileate. Pileus 18.9 × 11.2 × 5.9 cm, semicircular, imbricate, broadly attached. Upper sterile surface smooth, hard crusty, glabrous, surface often covered with a cinnamon powder of deposited spores, cocoa brown. Lower fertile surface poroid, round, regular, pores 2-3 per mm, creamy white when fresh, dull creamy when dried. Context up to 35 mm thick at base. Tubes up to 24 mm long, woody brown. Hyphal system dimitic, generative hyphae 2.5–4 µm wide, clamped, skeletal hyphae 2–4 µm wide, Spores 8.5–11 × 5–5.5µm oblong ellipsoid.

Collection examined: INDIA; Maharashtra, Marathwada, Aurangabad district, Taluka Soygaon, Nimbayati phata, 09/11/19, on living tree of main trunk *Butea monosperma* (Lam.) Taub., 335m, 20°32'55" N 75°31'26" E, GVU/MVP- 785, *Gore Vijay.*

***Phellinus badius* (Berk.:Cke.) Cunn.**

Basidiocarp perennial, pileate, sessile, hoof-shaped 7.2 × 4.6 cm, up to 3.1 cm thick at base, woody hard. Upper surface yellowish brown when young, soon becoming brownish black. Lower surface dark brown to reddish brown, glancing, pores 4-7 per mm. Hyphal system dimitic, generative hyphae hyaline 3-4 µm wide, skeletal hyphae thick-walled, 4-5 µm wide. Basidia broadly clavate, 11.5-14 × 5.5-7 µm. Spores broadly ellipsoid to sub globose, 6-7.5 × 6-6.5 µm.

Collection examined: INDIA; Maharashtra, Marathwada, Aurangabad district, Taluka Soygaon, Soygaon forest, 07/09/2014,on the main trunk of living tree *Acacia nilotica*(L.) Delile, 339m, 20°34'26" N75°33'01

***Phellinus mori* Y.C. Dai & B.K. Cui**

Basidiocarp annual to perennial, solitary, resupinate, 11.2-28.9 × 1.8-7.6 × 0.1-0.6 cm, initially arises in the form of small patches then spread long area, velvety, tough to hard, heavy when fresh, woody hard on drying inseparable, broadly elongated. Fertile surface poroid, round, regular, pores 5-7per mm, decurrent toward margin yellowish brown to golden brown when young, umber brown to reddish brown in old fruiting bodies. Hyphal system dimitic; generative hyphae 1.5-3 µm wide, skeletal hyphae 3.5-5 µm wide, Basidia 10.5-12 × 6.5-8 µm. Spores 4-5 × 3-4.2 µm, broadly ellipsoid to subglobose.

Collection examined: INDIA; Maharashtra, Marathwada, Aurangabad district, Taluka Soygaon, Tidka,16/10/2016,on the wood log of *Ricinus communis* L.,333m, 20°30'27"N 75°23'16" E,VUG/VPM-582,*Vijay Gore*.

***Pycnoporus sanguineus* (L. : Fr.) Murr.**

Basidiocarp annual, sessile, pileate, 3.1-3.6 × 1.9-2.3 × 0.3-0.7 cm, applanate. Upper surface orange red to salmon-buff in some old specimens, glabrous on older portions, azonate. Lower surface dark red, pores rounded, 5-6 per mm, orange buff, concentrically zonate with alternating zones of pale buff and pale orange. Hyphal system trimitic, generative hyphae thin-walled, hyaline, with frequent clamps, rarely branched, 2.5-3 µm wide, skeletal hyphae thick-walled, hyaline, 2.5-5 µm wide, binding hyphae thick-walled, 2.5-3 µm wide. Basidia clavate, 11.5-15 x 4-6 µm wide. Spores cylindric, 5.5-6 x 2-2.5 µm.

Collection examined: INDIA; Maharashtra, Marathwada, Aurangabad district, Taluka Soygaon, Tidka, 16/10/2016,on the wood log of *Terminalia arjuna* (Roxb. ex DC.) Wight &Arn., 333 m,20°30'26" N75°23'16" E,VUG/VPM-577,*Vijay Gore*.

***Schizophyllum commune* Fr.**

Basidiocarp annual, pileate, 0.5-3 cm diam., thin, flabelliform, laterally attached by a small base, Upper surface pale to dark greyish brown, villose. Lower surface falsely lamellate, separating along the 'lamellae-edge' in dry conditions so that the two surfaces become recurved, geryish brown to greyish black. Hyphal system monomitic, hyphae thin to thick-walled 4-6.5 µm wide. Basidia 16-20 x 4-6 µm, narrowly clavate. Spores 3.5-5 x 1-1.5 µm, allantoid.

Collection examined: INDIA; Maharashtra, Marathwada, Aurangabad district, Taluka Soygaon, Soygaon forest, 07/09/2014,on the dried tree *Boswellia serrata* Roxb. Ex Colebr, 543 m, 20°28'07"N75°23'46"E, VUG/VPM-91, *Vijay Gore*.

***Scytinostroma duriusculum* (Berk. & Broome) Donk.**

Basidiocarp annual, membranous, 0.9-10.4 × 0.7-7 cm, resupinate to widely effused thin, brittle on drying. Fertile surface smooth, when touched gives velvety sensation. Cream to paleyellow to greyish yellow. Hyphal system dimitic, generative hyphae thin-walled, 1.5–2.3 µm wide. Skeletal hyphae 1.5–2 µm wide. Spores 5.5–7 × 4–7.5 µm wide, globose.

Collection examined: INDIA; Maharashtra, Marathwada, Aurangabad district, Taluka Soygaon, Soygaon forest, 07/09/2014,on the living tree at main trunk of *Wrightia antidysenterica* (L.) R.Br, 581m, 20°28'05"N 75°23'55"E, VUG/VPM-87, *Vijay Gore*.

***Trametes cingulata* Berk.**

Basidiocarp annual to perennial, pileate, 4.9-6.3 × 3.2-4.3 × 0.3-0.7 cm thick at base, applanate, semicircular with a contracted base, Upper surface glabrous, dull to semiglossy, whitish to ochraceous becoming greyish to sooty black concentrically zonate and sulcate. Lower surface cream to ochraceous, pores round and regular, 4-6 per mm. Hyphal system trimitic, generative hyphae 1.5-3 µm wide, skeletal hyphae 3.5-5 µm wide, binding hyphae 1.5-3 µm wide. Basidia clavate, 17-22 x 5-6 µm. Spores broadly ellipsoid, 4-6 x 3-3.5 µm.

Collection examined: INDIA; Maharashtra, Marathwada, Aurangabad district, Taluka Soygaon, Tidka, 16/10/2016,on the wood log of *Terminalia arjuna* (Roxb. ex DC.) Wight & Arn., 333 m, 20°30'26"N 75°23'16"E, VUG/VPM-576,*Vijay Gore*.

***Trametes ellipsospora* Ryvarden**

Basidiocarp annual, resupinate to effused reflex to pileate, sessile 0.9-3.4 × 0.7-1.9 × 0. 2-0.4 cm, thick at base. Upper surface covered strigose hairs, shiny, sulcate, weakly zonate, cream to pale yellow to pale brown tint. Lower surface poroid 4-6 per mm pores, angular, somewere toothed, cream to pale yellow. Hyphal system dimitic, generative hyphae hyaline, thin-walled, 1.5-3 µm wide, skeletal hyphae hyaline, thick-walled, 2.5-5 µm wide. Binding hyphae 2.5-3.5 µm wide. Basdia clavate, thin-walled, 12-14 × 4.5-6 µm. Spores 3.5-5.5 × 2.5-3.5 µm, ellipsoid.

Collection examined: INDIA; Maharashtra, Marathwada, Aurangabad district, Taluka Soygaon, Soygaon forest,07/09/2014,on the living tree at twings of *Hardwickia binata* Roxb, 567m, 20°28'13" N75°23'50" E, VUG/VPM-89,*Vijay Gore*.

***Truncospora tephropora* (Mont.) Zmitr.**

Basidiocarp perennial, resupinate, 46.9 × 18.1 × 0.7 cm thick at centre, woody hard on drying. Fertile surface clay, buff to grey to pale umber, pores round to angular, 4-6 per mm.Hyphal system trimitic, generative hypahe, thin-walled, 2.2-3 µm wide, skeletal hyphae thick-walled, 3-4.5 µm wide, binding hyphae thin to thick-walled, 1.6-3 um wide. Basidia narrowly clavate, 12.5-16 × 4-5 µm wide. Spores broadly ellipsoid, thick-walled, 4.5-6 × 3-4.5 µm wide.

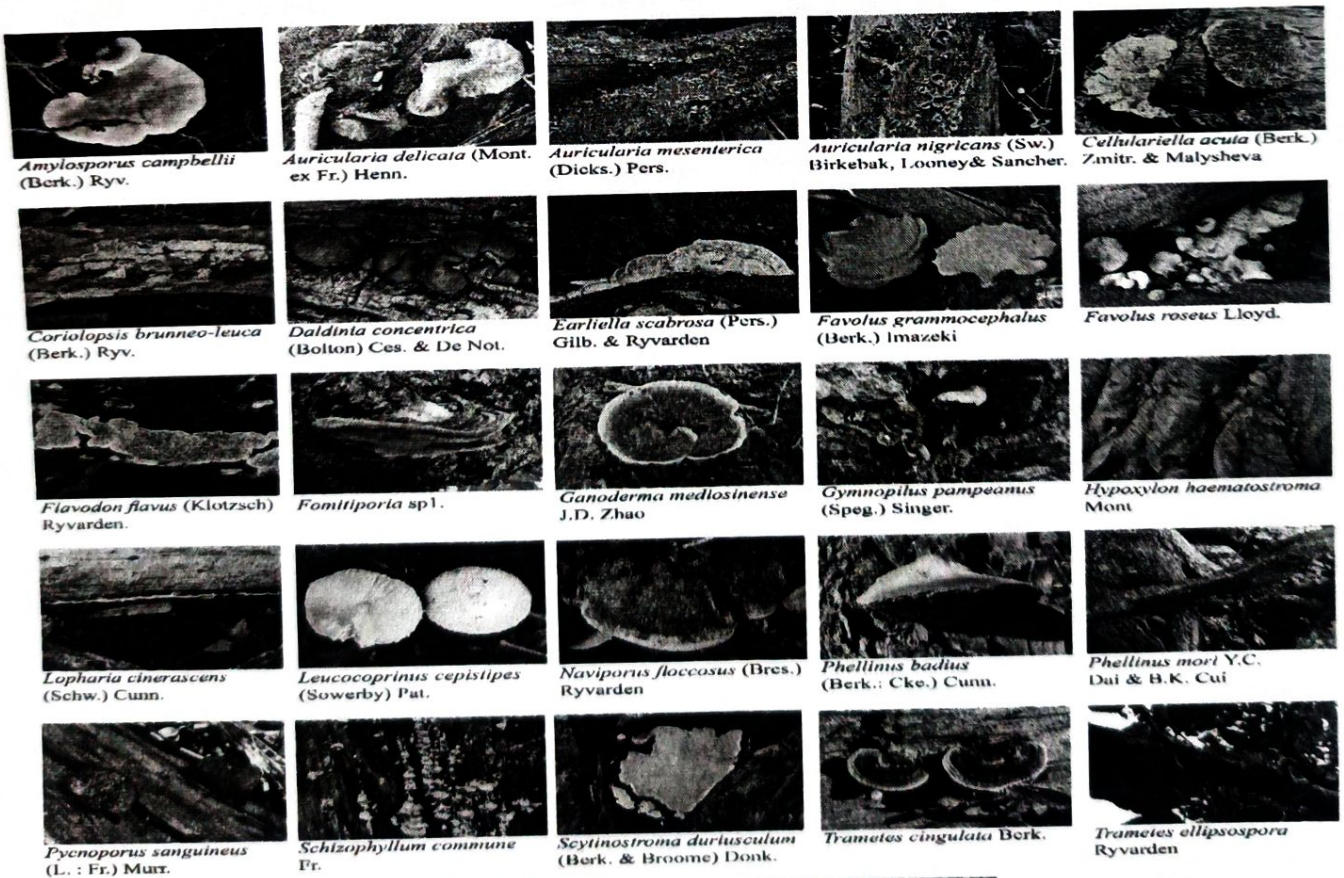
Collection examined: INDIA; Maharashtra, Marathwada, Aurangabad district, Taluka Soygaon, Vakdi,16/10/2016,onthewood log of *Acacia nilotica* (L.) Delile, 296m, 20°31'53" N75°22'35" E,VUG/VPM-586,*Vijay Gore*.

***Xylaria polymorpha* (Pers.) Grev.**

Basidiocarp annual, 2.3-7.5 × 0.5-2.6 cm, extremely variable in shape and size, cylindric to cylindro-clavate. grayish white to tan when fresh, becoming dull blackish brown to black when old. Perithecia 530-790 × 330-430 µm wide. Asci long-stipitate, 8-spored, 160-230 × 6.5-15 µm wide, spore bearing part 90–145 µm wide, with apical ring rectangular, 4 – 6.5 × 3 – 4 µm wide. Ascospores 23–28×5.5–7 µm wide, ellipsoid-inequilateral.

Collection examined: INDIA; Maharashtra, Marathwada, Aurangabad district, Taluka Soygaon, Nimbayati Phata, 20°32'54" N 75°31'025" E, alt 336m, on the living tree of main trunk of *Butea monosperma* (Lam.) Taub; 09/11/19, VUG/VPM–784, *Vijay Gore*.

Photo plate 1



Conclusion

Ninety-three wood-decaying fungi were collected during the present study represented twenty-two genera and twenty-seven species belongs to fourteen families Agaricaceae, Auriculariaceae, Bondarzewiaceae, Fomidopsidaceae, Ganodermataceae, Hymenochaetaceae, Hymenogastraceae, Hypoxylaceae, Irpicaceae, Lachnocladiaceae, Phanerochaetaceae, Polyporaceae, Schizophyllaceae, and Xylariaceae. From the above observation and discussion, it is concluded that the family Polyporaceae was dominant consisting of eight genera. Mostly dominating macrofungi were observed *Auricularia mesenterica*, *Auricularia nigricans*, *Cellulariella acuta*, *Coriolopsis brunneo-leuca*, *Daldinia concentrica*, *Earliella scabrosa*, *Flavodon flavus*, *Gymnopilus pampeanus*, *Hypoxylon haematostroma*, *Lopharia cinerascens*, *Naviporus floccosus*, *Phellinus badius*, *Schizophyllum commune*, *Scytinostroma duriusculum*, *Trametes cingulata*, and *Truncospora tephropora* while, *Amylosporus campbellii*, *Auricularia delicate*, *Favolus grammocephalus*, *Favolus roseus*, *Fomitiporia* sp, *Ganoderma mediosinense*, *Leucocoprinus cepistipes Phellinus mori*, *Pycnoporus sanguineus*, *Trametes ellipsospora*, and *Xylaria polymorpha* were rare occurrence. The macrofungi reported during this study belonged to thirteen hosts *Acacia nilotica*, *Albizia lebbeck*, *Azadirachta indica*, *Boswellia serrata*, *Butea monosperma*, *Ficus amplissima*, *Ficus benghalensis*, *Hardwickia binata*, *Ricinus communis*, *Terminalia arjuna*, *Terminalia bellirica*, *Wrightia antidysenterica*, and *Wrightia tinctoria*.

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Diversity and Distribution of Wood-Rotting Fungi from Kannad Tehsil Aurangabad District, (M.S.) India

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***Abstract*-Two hundred and fifty-three fruiting bodies were collected various area of Kannad tehsil Aurangabad district (M.S.) India. Specimens were identified according to morphological and microscopic features, from that first record of forty-three species, belongs to thirty-one genera *Coriolopsis* Murrill, *Datronia* Donk, *Duportella* Pat, *Favolus* Fr, *Flavodon* Ryvarden, *Fomitopsis* P. Karst, *Fuscoporia* Murrill, *Ganoderma* P. Karst, *Gloeoporus* Mont, *Gyrodontium* Pat, *Inonotus* P. Karst, *Lopharia* Kalchbr. & MacOwan, *Macrocybe* Pegler & Lodge, *Navisporus* Ryvarden, *Phanerochaete* P. Karst, *Phellinus* Quél, *Phlebiopsis* Jülich, *Pleurocybella* Singer, *Pleurotus* (Fr.) P. Kumm, *Pluteus* Fr, *Podoscypha* Pat, *Psathyrella* (Fr.) Quél, *Serpula* (Pers.) Grey, *Tomophagus* Murrill, *Trametes* Fr, *Truncospora* Pilát, *Auricularia* Bull, *Exidia* Fr, *Heterochaete* Pat, *Daldinia* Ces. & de Not, *Xylaria* Hill ex Schrank and fifteen families Auriculariaceae, Callistosporiaceae, Coniophoraceae, Hymenochaetaceae, Hymenogastraceae, Hypoxylaceae, Irpicaceae, Peniophoraceae, Phanerochaetaceae, Pleurotaceae, Pluteaceae, Podoscyphaceae, Polyporaceae, Serpulaceae, and Xylariaceae.**

***Keywords*-Fruit bodies, Kannad, Morphological, Microscopic, Specimens.**

INTRODUCTION:

Wood-rotting fungi are important component and play a major role in ecosystem functions such as litter decomposition, nutrient cycle and nutrient transport. Most fungi are saprobes occurs on living trees, decaying wood, litter and among other. Saprophytic members constitute major recycler of nutrients and know to break down lignin and cellulose in wood. Wood rot is categories in to two main groups white rot and brown rot. White rot degrade lignin, while brown rot degrade cellulose and hemicellulose. Hyphae of the white rot fungi are concentrated in the ray cells and vessels although, other cells are invaded very earlier in decay, initially invade other cells from ray cells and vessels via pits or directly by penetration of cell wall (Wilcox, 1970; Liese, 1970). Brown rot fungi utilize the cell wall's hemicellulose and cellulose, leaving lignin essentially undigested, but slightly modified (Kirk,1975; Kirk & Alder 1970).The first Indian record traced back to the work of (Klotzsch, 1832) in his paper on Indian Polyporaceae. While undertaking the review of literature on wood-decaying fungi of Maharashtra, I came to know that the Western part of Maharashtra focusing mainly on Western Ghats regions is comparatively well documented. This is because (Blatter, 1911) provided a list of Indian fungi, with the description of two new species. (Sathe & Rahalkar 1975) and (Sathe & Sasangan, 1977), (Sathe & Deshpande, 1980), did limited taxonomic studies of agaricoid wood-decaying fungi of Maharashtra State. Checklist of Aphyllophorales from the western ghat of Maharashtra state reported 256 species of aphyllophoraceous fungi included 170 species from 10 poroid families and 86 species from 20 non-poriod families (Ranadive et al, 2011). Fourteen species of wood-decaying fungi from Mantha (Kakde & Gaikwad, 2014). Eleven species of wood-rotting fungi were reported from Gautala Autram Ghat Sanctuary, Maharashtra (Gore & Mali, 2021).

MATERIALS AND METHODS:

Survey and collection of wood rotting fungi were done 15 to 20 days after heavy rainfall month of July to November from year (2014-2019) from various region of Kannad teshil. The fruiting body of fungi is first photographed at the site then noted down morphological features by using a hand lens (20 X) dimension, color, shape, consistency, upper sterile surface, lower fertile surface, margin, context, tubes, and pores per mm in the field book and then specimens are sun-dried. Microscopic observations were done by taking freehand thin section cutting of fruiting bodies with the help of sharp razor blades, stained and studied in 10 % KOH, Lactophenol, and Melzer's reagent under 40X and 100X Magnification (Olympus CX 41) in laboratory. Then specimens of macro-fungi were kept in brown paper packets as per international mycological herbarium guidelines according to date of collection, locality, host name, altitude, latitude, longitude, and classification of species. Naphthalene balls were placed in each herbarium packet to avoid insect attack.

RESULTS & DISCUSSION:

Total forty- three species of wood rotting fungi (Table-1) were recorded during present study. All these species have been recorded first time from Kannad tehsil of Aurangabad district, Maharashtra state.

Table-1: Diversity and Distribution of Wood-rotting Fungi

Sr. no	Family	Species	Host	Date & Locality	Altitude	Latitude& Longitude	Collection Number
01	Auriculariaceae	*Auricularia*	*Albizia lebbeck* (	08/08/16	630m	20°21'03"N	VUG/VPM

		mesenterica (Dicks.)Pers.	L.) Benth.	Digoan		75°26′58″E	247
		Auricularia nigricans (Sw.) Birkebak, Looney & Sánchez-García,	*Azadirachta indica* A.Juss.	29/07/16 Chincholi (li),	652m	20°22′57″N 75°22′19″E	VUG/VPM-206
		Exidia recisa (Ditmar) Fr.	*Acacia nilotica* (L.) Delile	26/09/16 Aadgoan	640m	20°19′35″N 75°26′51″E	VUG/VPM-410
		Heterochaete delicata Bres.	*Mangifera indica* L.	29/07/16 Chincholi (li),	649m	20°22′52″N 75°22′29″E	VUG/VPM-207
02	Callistosporiaceae	*Macrocybe gigantea* (Massee) Pegler & Lodge	*Delonix regia* (Hook.) Raf.	27/09/16 Palshi	691m	20°18′26″N 75°17′28″E	VUG/VPM-430
03	Coniophoraceae	*Gyrodontium sacchari* (Spreng.) Hjortstam	*Pithecellobium dulce* (Roxb.) Benth	28/9/19 Satkundtanda,	663m	20°19′14″N 75°4′15″E	VUG/VPM-719
04	Hymenochaetaceae	*Fomitiporia* sp.1	*Mangifera indica* L.	23/10/16 Hasta,	733m	20°17′08″N 75°14′41″E	VUG/VPM-665
		Fuscoporia rhabarbarina (Berk.)	*Terminalia bellirica* (Gaertn.)Roxb.	10/08/14 Hasta,	729m	20°17′09″N 75°14′51″E	VUG/VPM-02
		Fuscoporia senex (Nees & Mont.) Ghob.-Nejh.	*Azadirachta indica* A.Juss.	14/09/14 Nevpur	664m	20°22′44″N 75°18′54″E	VUG/VPM-133
		Inonotus rickii (Pat.) D.A. Reid	*Senna siamea* (Lam.) H.S.Irwin & Barneby	29/07/16 Barkatpur	639m	20°22′29″N 75°23′27″E	VUG/VPM-211
		Phellinus gilvus (Schwein.) Pat.	*Acacia nilotica* (L.) Delile	14/09/14 Puranwadi	711m	20°22′00″N 75°11′28″E	VUG/VPM-143
		Phellinus mori Y.C. Dai & B.K.Cui	*Leucaena leucocephala* (Lam.) de Wit	23/10/16 Kannad	638m	20°13′56″N 75°07′50″E	VUG/VPM-675
05	Hymenogastraceae	*Gymnopilus pampeanus* (Speg.)Singer	*Mangifera indica* L.	08/10/16 Shelgaon	646m	20°20′25″N 75°25′31″E	VUG/VPM-521
		Gymnopilus purpureosquamulosus Høil.	*Zizyphus mauritiana* Lam.	02/09/16 Takli (A),	654m	20°24′28″N 75°22′24″E	VUG/VPM-326
06	Hypoxylaceae	*Daldinia concentrica* (Bolton)Ces. & De Not.	*Peltophorum pterocarpum* (DC.) K.Heyne	27/09/16 Palshi,	697m	20°18′30″N 75°17′14″E	VUG/VPM-428
07	Irpicaceae	*Flavodon flavus* (Klotzsch) Ryvarden	*Mangifera indica* L.	14/09/14 Puranwadi	711m	20°22′00″N 75°11′28″E	VUG/VPM-141
08	Peniophoraceae	*Duportella tristicula* (Berk. & Broome) Reinking	*Ricinus communis* L.	08/10/16 Shelgaon	646m	20°20′31″N 75°25′32″E	VUG/VPM-520
09	Phanerochaetaceae	*Lopharia cinerascens* (Schwein.) G. Cunn.	*Azadirachta indica* A.Juss.	23/10/16 Kannad	638m	20°13′56″N 75°07′50″E	VUG/VPM-679
		Phanerochaete sordida (P. Karst.) J. Erikss. & Ryvarden	*Zizyphus mauritiana* Lam.	23/10/16 Sakharvel,	715m	20°19′30″N 75°17′04″E	VUG/VPM-651

		Phlebiopsis crassa (Lév.) Floudas& Hibbett	*Acacia nilotica* (L.) Delile	02/09/16 Vakod	640m	20°22′12″N 75°24′07″E	VUG/VPM-329
		Phlebiopsis flavidoalba (Cooke)Hjortstam	*Zizyphus mauriti ana* Lam.	27/09/16 Khatkheda	720m	20°19′10″N 75°16′59″E	VUG/VPM-423
10	Pleurotaceae	*Pleurotus djamor* (Rumph. ex Fr.) Boedijn	*Mangifera indica* L.	10/09/14 Chincholi (li),	652m	20°22′56″N 75°22′18″E	VUG/VPM-105
		Pleurotus dryinus (Pers) P. Kumm.	*Mangifera indica* L	21/09/14 Wadichimnapur	655m	20°22′59″N 75°19′50″E	VUG/VPM-151
		Pleurotus ostreatus (Jacq.) P. Kumm.	*Mangifera indica* L	23/10/16 Wasadi,	703m	20°18′26″N 75°16′32″E	VUG/VPM-654
11	Pluteaceae	*Pluteus cervinus* (Schaeff.) P.Kumm.	*Acacia nilotica* (L.) Delile	03/10/16 Digoan	648m	20°21′10″N 75°26′34″E	VUG/VPM-448
12	Podoscyphaceae	*Podoscypha petalodes* (Berk.) Boidin	*Acacia nilotica* (L.) Delile	14/09/14 Chimnapur phata	683m	20°23′39″N 75°14′53″E	VUG/VPM-138
		Podoscypha sp1	*Albizia lebbeck* (L.) Benth.	28/9/19 Kannad	629m	20°15′51″N 75°08′47″E	VUG/VPM-722
13	Polyporaceae	*Coriolopsis brunneoleuca* (Berk.)Ryvarden	*Delonix regia* (Hook.) Raf.	27/09/16 Palshi,	691m	20°18′26″N 75°17′28″E	VUG/VPM-630
		Coriolopsis occidentalis (Klotzsch)Murrill	*Abelmoschus esculentus* (L.) Moench	10/09/14 Chincholi (li),	652m	20°22′57″N 75°22′18″E	VUG/VPM-107
		Coriolopsis telfairii (Klotzsch) Ryvarden	*Leucaena leucocephala* (Lam.) de Wit	20/10/16 Mohada	673m	20°18′20″N 75°23′59″E	VUG/VPM-629
		Datronia sp.1	*Albizia lebbeck* (L.) Benth.	06/08/16 Takli(A) ,	650m	20°24′31″N 75°22′33″E	VUG/VPM-239
		Favolus grammocephalus (Berk.)Imazeki	*Zizyphus mauriti ana* Lam.	21/09/14 Nagad	331m	20°27′11″N 75°10′16″E	VUG/VPM-165
		Favolus roseus Lloyd	*Mangifera indica* L	17/08/14 Puranwadi	718m	20°22′02″N 75°11′47″E	VUG/VPM-26
		Ganoderma chalceum (Cooke) Steyaert	*Pithecellobium dulce* (Roxb.) Benth.	02/10/14 Satkund	663m	20°19′14″N 75°4′15″E	VUG/VPM-191
		Ganoderma mediosinense J.D. Zhao	*Senna siamea* (Lam.) H.S.Irwin & Barneby	02/09/16 Vakod,	640m	20°22′12″N 75°24′07″E	VUG/VPM-331

		Glocoporus sp.1	*Mangifera indica* L.	22/08/14 Chincholi (li),	652m	20°22′51″N 75°22′29″E	VUG/VPM-52
		Navisporus floccosus (Bres.) Ryvarden	*Senna siamea* (Lam.) H.S.Irwin & Barneby	19/10/16 Vakodphata	641m	20°22′05″N 75°24′20″E	VUG/VPM-600
		Trametes cingulata Berk.	*Acacia nilotica* (L.) Delile	29/09/14 Chincholi (li),	651m	20°24′08″N 75°22′13″E	VUG/VPM-185
		Trametes orientalis (Yasuda)Imazeki	*Acacia nilotica* (L.) Delile	10/11/19 Nagapur	675m	20°23′01″N 75°15′48″E	VUG/VPM-789
		Truncospora tephropora (Mont.)Zmitr	*Eucalyptus obliqua* L'Hér.	08/08/16 Takli(A),	646m	20°24′25″N 75°22′26″E	VUG/VPM-242
		Tomophagus colossus (Fr.) Murrill	*Acacia nilotica* (L.) Delile	28/9/19 Satkund	667m	20°18′14″N 75°05′02″E	VUG/VPM-721
14	Serpulaceae	*Serpula similis* (Berk. & Broome) Ginns	*Delonix regia* (Hook.) Raf.	21/09/14 Nagad,	334m	20°27′04″N 75°10′13″E	VUG/VPM-173
15	Xylariaceae	*Xylaria symploci* A. Pande, Waing., Punekar & Ranadive	*Acacia nilotica* (L.) Delile	26/09/16 Aadgoan	640m	20°19′35″N 75°26′51″E	VUG/VPM-409

CONCLUSION:

Macrofungi from Kannad tehsil of Aurangabad district first record of forty-three species belonging to fifteen families, and thirty-one genera. Phylum Ascomycota poorly reported belonging to single family, genus and species. Phylum Basidiomycota belongs to fourteen families, twenty-nine genera and fourty-two species grows on fifteen host.

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Diversity and Distribution of Wood-Rotting Fungi from Jalna District, (M.S.) India.

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ABSTRACT:

Ninety-three fruiting bodies of wood-rotting fungi were collected from various area of Jalna District, belongs to eight tehsil, (M.S.) India. Specimens were identified according to morphological and microscopic characters, from that thirty-one species are new recorded to Jalna District, belongs to twenty-three genera and eleven families. Most dominating family was observed Polyporaceae (Ten genera) and genus were observed *Auricularia* and *Phellinus* (Three species each).

KEYWORDS: *Auricularia*, Fruiting bodies, Jalna, Morphological, Microscopic, *Phellinus*.

INTRODUCTION:

Jalna district is situated at the Marathwada region of Maharashtra state, located between 19.01' N to 21.05' N and from 75.04'E to 76.04'E. Belongs to eight tehsil Bhokardan, Jafrabad, Jalna, Badnapur, Ambad, Ghansawangi, Partur, and Mantha. From these study area wood-rotting fungi were collected. Wood-rotting fungi are important component and play a major role in ecosystem functions such as natural recycler i.e. litter decomposition, nutrient cycle and nutrient transport. Most fungi are parasite or saprobes occurs on living trees, decaying wood, litter and among other. Such type of macro-fungi know to break down lignin and cellulose in wood. Wood rot is categories into two main groups white rot and brown rot. White rot degrade lignin, while brown rot degrade cellulose and hemicellulose. Woody products and slash, there is strong tendency for softwood to be decay by brown rot and hardwood decay by white rot fungi (Scheffer, 1964). Hyphae of the white rot fungi are concentrated in the ray cells and vessels although, other cells are invaded very earlier in decay, initially invade other cells from ray cells and vessels via pits or directly by penetration of cell wall (Liese, 1970; Wilcox, 1970). Brown rot fungi utilize the cell wall's hemicellulose and cellulose leaving lignin essentially undigested, but slightly modified (kirk & Alder 1970; Kirk, 1975). The first Indian record traced back to the work on his paper on Indian Polyporaceae (Klotzsch, 1832). While undertaking the review of literature on wood-rotting fungi of Maharashtra, I came to know that the Western part of Maharashtra focusing mainly on Western Ghats regions is comparatively well documented. These is because (Blatter, 1911) provided a list of Indian fungi, with the description of two new species. (Sathe and Rahalkar 1975), (Sathe and Sasangan, 1977), and (Sathe and Deshpande, 1980), did limited taxonomic studies of agaricoid wood-decaying fungi of Maharashtra State. Checklist of Aphyllophorales from the western ghat of Maharashtra state reported 256 species collected from 629 specimens of aphyllophoraceous fungi included 170 species from 10 poroid families and 86 species from 20 non-poriod families (Ranadive et al, 2011). 3 genera and 14 species of wood-decaying fungi were reported from Mantha (Kakde and Gaikwad, 2014).

...ra and 15 species of wood decaying fungi reported from Dr. Babasaheb Ambedkar Marathwada University, Aurangabad Campus, Maharashtra (Gore and Mali, 2021). 11 genera and 11 species were reported from Gautala Autram Ghat Sanctuary, Maharashtra (Gore and Mali, 2021). 5 species of genus *Xylaria* reported from Aurangabad District of Maharashtra (Gore and Mali, 2022). Recently from collected 93 specimens, 27 species were identified followed by 22 genera and 14 families from Soygaon Tehsil Aurangabad district (M.S.) India (Gore and Mali, 2023).

MATERIALS AND METHODS:

Collection of wood rotting fungi were done 20 to 25 days after heavy rainfall month of July to November from year (2021-2022), from various region of Jalna District. The fruiting body of fungi is first photographed then noted down macro-morphological features by using a hand lens (20 X) color, shape, dimension, consistency, sterile surface, fertile surface, pore per mm. Microscopic observations were done by taking freehand thin section cutting of fruiting bodies with the help of sharp razor blades, stained and studied in 5 % KOH, Lactophenol, and Melzer's reagent under 40X and 100X Magnification (Olympus CX 41) in laboratory.

RESULTS AND DISCUSSION:

In present study 31 species of wood rotting fungi were identified from various regions of Jalna District, Maharashtra state. Followed by 23 genera and 11 families. Have been summarized (Table 1).

Table 1:- Diversity and distribution of Wood-rotting Fungi with host susceptible from Jalna District

Sr. no	Scientific name	Family	Host	Thallus Dimension	Spore Dimension	Date & Locality	Latitude & Longitude
Ascomycota							
01	*Hypoxylon haematostroma* Mont.	Hypoxylaceae	*Peltophorum pterocarpum* (DC.) K.Heyne	Annual, resupinate or crust like, 0.5–6.2 × 0.4–3.9 × 0.1–0.3 cm, fertile surface minutely papillate, cinnabar red.	Spore 15–18 × 5.5–8.5 µm, elliptic-fusiform.	19/09/2021 Saklecha nagar, Jalna, Tq. Jalna	19°51'04" N 75°52'53" E
02	*Hypoxylon rubiginosum* (Pers.) Fr.	Hypoxylaceae	*Acacia nilotica* (L.) Delile	Annual to perennial, crust like, 1–17 × 1.8–5.5 × 0.1–0.4 cm, fertile surface papillate, rusty brown.	Spore 11–15 × 5–6 µm, ellipsoid-in-equilateral.	23/10/2022 Old MIDC, Jalna, Tq. Jalna	19°51'40" N 75°54'12" E
03	*Xylaria feejeensis* (Berk.) Fr.	Xylariaceae	*Senna siamea* (Lam.) H.S.Irwin & Barneby	Annual, upright, in groups, 14.5 cm high, corky, fertile surface 2.4–14.5 × 0.1– 0.3 cm, clavate, stalk cylindrical	Spores 9.8–16.5 × 3.5–6 µm, ellipsoid to equilateral	29/09/2021 Parner, Tq. Ambad.	19°38'57" N 75°47'07" E
04	*Xylaria multiplex* (Kunze) Fr.	Xylariaceae	*Acacia nilotica* (L.) Delile	Annual, in groups, stalked, small, brittle, fertile surface 2.4–3.9 × 0.1– 0.3 cm, clavate, stalk short, cylindrical.	Spores 9–10.5 × 4–6 µm, Ellipsoid to equilateral.	02/10/2022 Hatdi, Tq. Partur	19°31'19" N 76°10'15" E
05	*Xylaria polymorpha* (Pers.) Grev.	Xylariaceae	*Senna siamea* (Lam.) H.S.Irwin & Barneby	Annual, 1.6–6.3 × 1.4–3.2 cm, Sub-stalked to sessile, clavate to cylindrical, fertile surface papillate with black.	Spores 10–15 × 4–5 µm, fusiform.	09/10/2022 Antarwala, Tq. Jalna	19°46'16" N 75°51'11" E

Basidiomycota

06	*Leucocoprinus cepistipes* (Sowerby) Pat.	Agaricaceae	*Mangifera indica* L	Annual, cap 1.7–4.4 cm in diameter, gills free 14–18 per cm, stalk 3.5–8.6 × 0.5–1.2 cm, annulus present.	Spores 7.5–10 × 5–7 µm, ovoid.	08/08/2021 Malkheda, Tq. Bhokardhan	20°16'34" N 75°41'56" E
07	*Auricularia auricula-judae* (Bull.) Quél.	Auriculariaceae	*Senna siamea* (Lam.) H.S.Irwin & Barneby	Annual, pileate, 1.5–4.3 × 1.4–4.1 × 0.2–0.4 cm, ear like, fertile surface smooth, sulcate to vein like.	Spores 14–21 × 4.5–6.5 µm, allantoid.	02/10/2022 Partur, Tq. Partur	19°35'28" N 76°12'59" E
08	*Auricularia mesenterica* (Dicks.) Pers.	Auriculariaceae	*Peltophorum pterocarpum* (DC.) K.Heyne	Annual, resupinate to effuse-reflexed, 0.5–9.1 × 0.5–8.1 cm, up to 0.3 cm thick, moist dependent, fertile surface smooth to slightly wrinkled.	Spores 8–13 × 5.5–6.5 µm, ovoid to reniform.	22/08/2021 Viragaon, Tq. Bhokardhan	20°15'52" N 75°48'12" E
09	*Auricularia nigricans* (Sw.) Birkebak, Looney & Sánchez-García,	Auriculariaceae	*Mangifera indica* L	Annual, pileate, 0.5–3.8 × 0.5–2.7 cm, up to 0.4 cm thick, ear likemoist dependent, fertile surface smooth.	Spores 14–16.5 × 5.5–7.5 µm, allantoid.	23/10/2022 Kankeshwar mandir, Jalna, Tq. Jalna	19°51'59" N 75°55'36" E
10	*Exidia recisa* (Ditmar) Fr.	Auriculariaceae	*Acacia nilotica* (L.) Delile	Annual, glubose, 0.5–3.8 × 0.4–3.1 × 0.5–2.1 cm, annual, moist dependent, lobed mass irregularly folded to form brain like structure, Fertile surface smooth.	Spores 13.5–14.5 × 3.5–4 µm, allantoid.	30/10/2022 Mantha, Tq. Mantha	19°39'02" N 76°22'58" E
11	*Amylosporus campbellii* (Berk.) Ryvarden	Bondarzewiaceae	*Leucaena leucocephala* (Lam.) de Wit	Annual, pileate, 11.4 × 9.2 cm, up to 1.2 cm thick at base, pores round to sub-angular 4–5 per mm.	Spores 4–4.5 × 2.5–3.5 µm, ovoid to ellipsoid,	22/08/2021 Sipora, Tq. Jaffrabad	20°15'35" N 75°51'08" E
12	*Fomitopsis* sp.1	Fomidopsidaceae	*Acacia nilotica* (L.) Delile	Annual, pileate, 3.8–6.3 × 2.1–4.1 × 0.5–2.1 cm, pores round to angular, 5–7 per mm.	Spores 6–7 × 3.5–4 µm, allantoid,	29/09/2021 Parner, Tq. Ambad.	19°38'46" N 75°46'58" E
13	*Fuscoporia senex* (Nees & Mont.) Ghob.-Nejh.	Hymenochaetaceae	*Acacia nilotica* (L.) Delile	Annual to perennial, effuse-reflexed to pileate, 5.4 × 1.9 × 1.2 cm, pores round, 8-10 per mm.	Spores 4–4.9 × 3.2–4 µm, broadly ellipsoid to subglobose.	02/10/2022 Hatdi, Tq. Partur	19°31'19" N 76°10'16" E
14	*Inonotus cuticularis* (Bull.) P.Karst	Hymenochaetaceae	*Ficus benghalensis* L	Annual, pileate, 5.7-9.2 × 4.3-7.1 × 1.7 cm, pores angular, 2–4 per mm.	Spores6.5–8 × 5.5–6 µm, ellipsoid to ovoid.	22/08/2021 Viragaon, Tq. Bhokardhan	20°15'52" N 75°48'12" E
15	*Inonotus rickii* (Pat.) D.A. Reid	Hymenochaetaceae	*Peltophorum pterocarpum* (DC.) K.Heyne	Annual, globular to ellipsoidal, 11.2 × 9.6 × 9.7 cm.	Spores 8–22 × 7–14 µm, globose, ellipsoid.	19/09/2021 Jalna, Tq. Jalna	19°52'03" N 75°52'20" E
16	*Phellinus badius* (Cooke) G. Cunn.	Hymenochaetaceae	*Acacia nilotica* (L.) Delile	Perennial, 10.2 × 5.9 × 3.8 cm, pore round, regular 4–5 per	Spores 6.5–7.5 × 6–6.5 µm,	08/08/2021 Malkheda, Tq.	20°16'18" N

				mm.	ellipsoid to sub-globose.	Bhokardhan	75°41'53" E
17	*Phellinus gilvus* (Schwein.) Pat.	Hymenochaetaceae	*Azadirachta indica* A.Juss.	Annual to perennial, effused-reflexed to pileate, 1.7-5.2 × 1.3-3.1 × 1.7 cm, pores round, 4–6 per mm.	Spores4.5–6 × 2.5–3.5 µm, ellipsoid to ovoid.	29/09/2021 Ambad, Tq. Ambad.	19°37'28" N 75°48'25" E
18	*Phellinus igniarius* (L.) Quel.	Hymenochaetaceae	*Senna siamea* (Lam.) H.S.Irwin & Barneby	Perennial, 8.2 × 3.9 × 3.1 cm, pore round, regular 5–6 per mm.	Spores 5–7 × 4–6 µm, ovoid to subglobose	29/09/2021 Ambad, Tq Ambad	19°36'20" N 75°47'35" E
19	*Gymnopilus purpureosquamulosus* Høil.	Hymenogastraceae	*Mangifera indica* L	Annual, cap 2.5–6.2 cm in diameter, Stalk 4.2–6.1 × 0.5–0.9 cm, Gills free, 15–18 per cm.	Spores 7.5–9.5 × 4–6 µm, ellipsoid,	30/10/2022 Mantha, Tq. Mantha	19°39'02" N 76°22'58" E
20	*Scytinostroma duriusculum* (Berk. & Broome) Donk	Lachnocladiaceae	*Butea monosperma* (Lam.) Taub.	Anuual, resupinate, 3.8–16.2 × 2.7–10.7 cm, up to 0.05 cm thick, fertile surface smooth,when touched gives hair-like or velvety sensation.	Spores 5–7 × 4.5–7 µm, globose to subglobose.	29/09/2021 Ambad, Tq Ambad	19°36'20" N 75°47'35" E
21	*Podoscypha petalodes* (Berk.) Boidin	Podoscyphaceae	*Senna siamea* (Lam.) H.S.Irwin & Barneby	Annual, 3.5–7 cm high, 1.6–5.2 × 1.2–3.1 cm in diameter, up to 0.2 cm thick, fertile surface smooth, Stalk 2.1–4.4 × 0.2–0.4 cm.	Spores 2.5–4 × 1.5–3 µm, broadly ellipsoid	29/09/2021 Lalwadi, Tq Ambad	19°39'36" N 75°48'24" E
22	*Cellulariella acuta* (Berk.) Zmitr. &Malysheva	Polyporaceae	*Acacia nilotica* (L.) Delile	Annual, pileate, 14.4 × 8.7 × 2.6 cm thick near base, pores, maize like to lamelloid 1– 4 mm wide.	Spores 6–7.5 × 2–3 µm, cylindrical.	02/10/2022 Hatdi, Tq. Partur	19°31'18" N 76°10'15" E
23	*Coriolopsis brunneoleuca* (Berk.) Ryvarden	Polyporaceae	*Ficus amplissima* Sm.	Annual, effused reflexed to pileate, 25.2 × 17.2 × 0.3 cm, pores round to angular, 2–3 per mm.	Spores 8.5–12 × 2.5–4 µm, cylindrical.	22/08/2021 Harpala, Tq. Jaffrabad.	20°13'58" N 75°59'22" E
24	*Earliella scabrosa* (Pers.) Gilb. &Ryvarden	Polyporaceae	*Leucaena leucocephala* (Lam.) de Wit	Annual, effused reflexed to pileate, 17.9 9.4 × 0.2–0.6 cm, pores 1–3 per mm angular to iripicoid.	Spores 7–9 × 3–4 µm, cylindrical to oblong ellipsoid.	05/09/2021 Swanghi, Tq. Jaffrabad	20°11'02" N 76°00'08" E
25	*Funalia leonina* (Klotzsch) Pat.	Polyporaceae	*Mangifera indica* L	Annual, pileate, 5.3 × 4.7 × 2.3 cm, pores 1–2 per mm, angular to iripicoid.	Spores 11–14.5 × 3.5–5 µm, cylindrical.	18/09/2022 Badnapur, Tq. Badnapur	19°52'01" N 75°43'54" E
26	*Ganoderma australe* (Fr.) Pat.	Polyporaceae	*Azadirachta indica* A.Juss.	Annual to perennial, pileate, 20.4 × 11.2 × 5.3 cm, pores, round, regular, 3–5 per mm.	Spores 7–13 × 5–8.5 µm, ovoid to broadly ellipsoid	08/08/2021 Nasirabad, Tq. Bhokardhan	20°16'19" N 75°44'18" E
27	*Lentinus sajor-caju* (Fr.) Fr.	Polyporaceae	*Butea monosperma* (Lam.) Taub.	Annual, cap 4.1–6.3 cm in diameter, gills decurrent, 9–12 per cm, stalk 3.9–7.4 × 0.7–1.4 cm, central.	Spores 4–8 × 1.5–2.3 µm, cylindrical.	05/09/2021 Gondhankheda, Tq. Jafrabad	20°10'59" N 76°00'38" E
28	*Navisporus floccosus*	Polyporaceae	*Cordia dichotoma*	Annual, pileate, 15.9 × 11.2 × 8.7 cm, pores	Spores 8–11 × 5–	29/09/2021 Ambad, Tq	19°36'20" N

	(Bres.) Ryvarden		G.Forst.	round, 2–3 per mm.	5.5µm ellipsoid to navicular.	Ambad	75°47'35" E
29	*Pseudofavolus tenuis* (Fr.) G. Cunn.	Polypo raceae	*Peltophorum pterocarpum* (DC.) K.Heyne	Annual, effused-reflexed to pileate, 1.2–5.4 × 0.8–3.6 × 0.1–0.3 cm, pores 1–2 per mm wide, angular to hexagonal.	Spores 8.8–14.7 × 2.9–4.4 µm, cylindrical	05/09/2021 Borkheda Tq. Jafrabad	20°14'23" N 75°54'30" E
30	*Trametes cingulata* Berk.	Polypo raceae	*Acacia nilotica* (L.) Delile	Annual, pileate, 3.2–6.8 × 1.4–4.5 × 1.2 cm,pores, 3–6 per mm round.	Spores 4–5 × 3–3.5µm, broadly ellipsoid	16/10/2022 Indewadi, Tq. Jalna	19°48'18" N 75°51'41" E
31	*Truncospora tephropora* (Mont.) Zmitr.	Polypo raceae	*Eucalyptus obliqua*L'Hér	Perennial, crust-like, 4.6 – 27.2 × 2.9 – 7.3 cm up to 1.8 cm, pores 4–6 per mm, round, regular, decurrent toward margin.	Spores 4.5–6 × 3.5–4.5 µm, broadly ellipsoid.	22/08/2021 Borgaon, Tq. Bhokardhan	20°16'29" N 75°51'49" E

CONCLUSION:

93 fruiting bodies were collected from various area of Jalna District, belongs to eight tehsil, Bhokardan, Jafrabad, Jalna, Badnapur, Ambad, Ghansawangi, Partur, and Mantha. (M.S.) India. In present study, wood rotting fungi is categories into two Phyla Ascomycota and Basidiomycota. Ascomycota belongs to 2 families, 2 genera and 5 species and Basidiomycota belongs to 9 families, 21 genera and 26 species, from above observation it is concluded that Phyla Ascomycota is poorly known from study area. Most dominant family were observed Polyporaceae (10 species) and genus were observed *Auricularia* and *Phellinus* (3 species each). All these 31 species wood rotting fungi first time reported from study area and occurs on 11 different host *Acacia nilotica, Azadirachta indica, Butea monosperma, Cordia dichotoma, Eucalyptus obliqua, Ficus amplissima, Ficus benghalensis, Leucaena leucocephala, Mangifera indica, Peltophorum pterocarpum*, and *Senna siamea*.

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RESEARCH ARTICLE

DIVERSITY AND TAXONOMY OF WOOD ROTTING FUNGI FROM DHARASHIV [OSMANABAD] DISTRICT (M.S.) INDIA

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Abstract

In present investigation 107 specimens of Wood-rotting fungi were collected from various regions of Dharashiv [Osmanabad]District (M.S.) India. 25new species were recorded from the present study area, identified according to macroscopic features at the site and microscopic features in the laboratory and belong to 12 families and 24 genera. The most dominating family were observed Polyporaceae (6 genera) andthe most dominating genera was*Leucocoprinus*(2 species).

Introduction:-

Wood rotting macro-fungi inhabit the substrata that differ in size, state of decay, and levels of moisture contents. Wood rotting saprobic species occurs in an organized manner as the wood deteriorates slowly and gradually thus, ecologies of macro-fungi growing on different wood substrata are different. The breakdown of wood and changes in its physical and chemical componentsaretermed wood rot. Wood rotting fungi arecategorized into two groups white rot fungi and brown rot fungidepending upon way of wood rot. White rot fungi degrade all wood components including lignin while brown rot fungi degrade cellulose, hemicellulose, and itsassociated pentose, leaving the lignin more or less unaffected. The first serious study of 14 species of wood-rotting fungi was described by (Bagchee&Bakshi, 1954). 14 species of Wood decaying fungi were described From Mantha, district Jalna Maharashtra (Kakde&Gaikwad, 2014).10 species were reported from GautalaWildlife Sanctuary, Maharashtra (Gavhane et al, 2015). 5 species of the genus Trameteswere described from the Marathwada region of Maharashtra (Mali et al, 2016). 7 species of order Aphyllophoraleswere described fromYedshiRamlingWildlife Sanctuary DistrictOsmanabad (Chouse& Mali, 2016).The checklist of Aphyllophorales from Osmanabad district reported 23 genera, 34 species, and 11 families(Chouse& Mali, 2023). 22 genera, 27 species, and 14 families were reported from Soygaon tehsil of district Aurangabad, Maharashtra (Gore & Mali, 2023). 28 genera and 39 species, and were reported from Ajanta Forest, Maharashtra (Gore & Mali, 2023). Recently 18 genera, 20 species, and 15 families were reported from Sillod tehsil of ChhatrapatiSambhajinagar(Aurangabad) District, Maharashtra (Gore & Mali, 2024).

Materials and Methods:-

Wood-rotting macro-fungi were collected, 20 to 25 days after heavy rainfall months of July to November from the year (2021-2023) from various regions of Dharashiv (Osmanabad) District (M.S.) India. The fruiting bodies of macro-fungi are first photographed naturally at the site and then noted down morphological features by using a hand lens (20 X) dimension, shape, color, consistency, upper sterile surface, lower fertile surface, context, tubes, and

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pores per mm in the field book. Microscopic observations were done by taking freehand thin section cutting of fruiting bodies with the help of sharp razor blades, stained and studied in 10 % KOH and Lactophenol under microscope 40X and 100X Magnification in the laboratory. Then dried specimens were kept in brown paper packets as per international mycological herbarium guidelines and naphthalene balls were placed in each herbarium packet to avoid insect attack.

Result and Discussion:-

Wood-rotting fungi were identified from various regions of the Dharashiv (Osmanabad) District belonging to 12 families, 24 genera, and 25 species. In the present study, fungi were categorized into 2 Phyla Ascomycota and Basidiomycota. Phyla Ascomycota belongs to 2 families, 2 genera, and 2 species, and Phyla Basidiomycota belongs to 10 families, 22 genera, and 23 species. Macroscopic and microscopic features are described as follows (Photo plate 1 & Table 1)

Auricularianigricans(Sw.) Birkebak, Looney & Sánchez-García,
Fruiting body annual, solitary in groups, pileate, moist dependent, bracketed, soft jelly like when fresh, brittle on drying, easily separable. Pileus 0.5–3.8 × 0.5–2.7 cm, up to 0.4 cm thick, ear like or small bowel-like, attached with the help of a short stalk-like apparatus narrowly attached. Upper sterile surface velvety hairy, tuft of hairs forming greyish white appearance when young, greyish brown. Lower fertile surface smooth, purplish brown to coffee brown. Context jelly-like when fresh, waxy hard on drying, and homogeneous. Hyphal system monomitic; generative hyphae 2.5–5 µm wide. Spores 14–16.5 × 5.5–7.5 µm, allantoid.

Crepidotusvariabilis(Pers.) P. Kumm.
Fruiting bodyannual, solitary or in groups, fleshy. Pileus 0.5–2.6 cm in diameter, dimidiate, flabelliform or orbicular-reniform, hairy, smooth creamy white to greyish white. Gills 6–8 per cm, rather crowded, creamy white to greyish white. Stalk absent or very short. Context very thin, chalky white. Spore print white.Hyphal system monomitic; generative hyphae 3.5–7.5 µm wide. Spores 5.5–6.5 × 3–3.5 µm, ellipsoid.

Cyathusstriatus(Huds.)Willd.
Fruiting body annual, solitary or in groups, 0.5–1.3 cm in length, 0.4–0.7 cm wide, flower pot shaped or bell shaped with narrow tapering base, more or less nest like in which egg like organs present which remains covered with grayish whitetograyish brown. External wall 0.4–1.1 cm high, 0.4–0.9 cm wide at mouth, grayish brown to light brown. Internal wall longitudinally sulcate, smooth shiny, distinctly grooved,grayish brown.Peridioles 8–14 in numbers, upto 2 mm in diameter, within the peridium each egg is attached by a thread-like cord,grey to greenish grey.Spores 9–13 × 8.5–11 µm, ellipsoid to oblong ellipsoid.

Dacryopinaxspathularia(Schwein.) G.W. Martin.
Fruiting body annual, in groups, 0.5–1.9 × 0.1–0.4 cm, up to 0.2 cm thick, gregarious, caespitose many fruit bodies arises from single attachment in row or in groups, stipitate small stalk at base, jelly when fresh, brittle tough on drying. Head flabellate, spathulate to ligulate, arises small smooth cylindrical stalk which gradually develop into stalk and inflated head, brittle or horny on maturity bright yellow to yellowish orange when fresh, becoming on drying grayish yellowto brown orange. Context solid, smooth, homogenous. Stipe 0.3–1.5× 0.1–0.4 cylindrical, solid. Hyphal system monomitic; generative hyphae 2.5–5.5 µm wide. Spores 7.5–11.5 × 3.5–7 µm, oblong to subcylindrical.

Daldiniaconcentrica(Bolton) Ces. & De Not.
Fruiting body annual, solitary or in groups, globose, 2.2–6.8 × 2.1–5.3 × 1.1–2.4 cm, hemispherical to depressed spherical, tough to hard when fresh, brittle to charcoal like on drying, purple brown to brownish black Fertile surface smooth, glabrous, even or frequently cracked in to fine network, finely papillate, crusty, composed of single layer spore bearing flask like organ which open with the help of narrow beak on the surface, perithecia1–2 mm wide, tubular to lanceolate, slightly papillateostioles. Context composed of alternating zonation and each zone represent seasonal growth. Perithecia 800–1100 × 300–500 µm, lanceolate. Asci 200–260 × 7–12 µm, cylindrical, 8-spored. Spore 12–17 × 5–7 µm, elliptic-fusiform.

Exidiarecisa(Ditmar) Fr.
Fruiting body annual, solitary or in groups, irregular, 0.5–3.8 × 0.4–3.1 × 0.5–2.1 cm, moist dependent, small to large sized, lobed mass irregularly folded to form brain like structure, sessile, jelly like when fresh, hard and brittle

on drying, easily separable, purple brown to cinnamon brown when young, almost brownish black on drying. Fertile surface smooth, wrinkled, yellowish brown to cinnamon brown to brownish black. Context jelly like when fresh, hard on drying, homogeneous. Hyphal system monomitic; generative hyphae 2.5–3 µm wide. Spores 13.5–14.5 × 3.5–4 µm, allantoid.

Favolusgrammocephalus(Berk.) Imazeki.
Fruiting body annual, solitary or in the group, pileate. Pileus 2.7–21.2 × 1.9–13.7 cm and 0.2–1 cm thick at the base, semicircular, spathulate, weakly sulcate, glabrous, yellowish whitetoochraceous to pale brown. Lower fertile surface poroid 3–4 per mm pores, round to angular, yellowish white to brownish yellow. Context 0.1–0.8 cm wide, homogenous. Tubes 0.1–0.2 cm long. Stipe 0.4–1.6 × 0.4–1.8 cm, laterally attached, cylindrical homogenous.Hyphal system dimitic; generative hyphae 2–5 µm wide, skeleto-binding hyphae 4.5–7 µm wide, Spores 5–6 × 2–3 µm, oblong ellipsoid.

Fomitopsissp.
Fruiting bodyannual, solitary or in groups, pileate, effused-reflexed to pileate. Pileus 3.8–9 × 3.5–5.1 × 0.5–2.4 cm, semicircular, imbricate.Upper sterile surface smooth, tomentose becoming glabrous, weakly zonate, brownish grey to dull brown. Lower fertile surface poroid, round to angular, regular, pores 5–7 per mm, creamy when young becoming greyish brown when dried. Context 0.7–2 cm thick at base, solid, distinctly duplex. Tubes up to 0.1–0.4 cm wide.Hyphal system trimitic; generative hyphae 2–3 µm wide, skeletal hyphae 2.5–7 µm wide, binding hyphae 2–3 µm wide. Spores 6–7 × 3.5–4 µm, allantoid.

Funaliafloccosa(Jungh.) Zmitr. &Malysheva.
Fruiting body annual,solitary or in groups, resupinate to effused-reflexed to pileate, 0.5–6.9 × 0.5–3.9 × 0.2–0.5 cm. Pileus 0.5–4.3 × 0.4–2.1 × 0.2–0.5 cm, semicircular, kidney shaped. Upper sterile surface zonate, light sulcate, tomentose, ochraceousto greyish. Lower fertile surface poroid, pores round to angular, 1–2 per mm, faint greyish brown to tobacco brown to greyish brown. Context up to 0.3 cm thick, distinctly duplex. Tubes up to 0.2 cm deep, lacerate.Hyphal system trimitic; generative hyphae 1.5–3 µm wide, skeletal hyphae 2.5–6 µm wide, binding hyphae 1.5–4 µm wide. Spores 8.5–11.5 × 2.5–4 µm, cylindrical.

Fuscoporiasenex(Nees& Mont.) Ghob.-Nejh.
Fruiting body, annual to perennial, solitary or in groups, resupinate to effused-reflexed to pileate. Pileus 0.7–5.4 × 0.5–1.9 × 0.2–1.2 cm, dimidiate, imbricate.Upper sterile surface velvety to glabrous, azonate to weakly zonate, sulcate, yellowish brown to golden brown. Lower fertile surface poroid, round, regular, pores 8-10 per mm, yellowish creamto yellowish brown.Contextup to 1 cm thick, solid, zonate, homogenous. Tubes up to 0.2 cm deep. Hyphal system dimitic; generative hyphae 2–3 µm wide, skeletal hyphae 3–4.2 µm wide. Spores 4–4.9 × 3.2–4 µm, broadly ellipsoid to sub-globose.

Ganodermaaustrale(Fr.) Pat.
Fruiting body annual to perennial, pileate. Pileus 6.8–20.4 × 6.1–11.2 × 0.5–5.3 cm, semicircular. Upper sterile surface smooth, sulcate, groove to papillate, glabrous, cracking with age, surface covered with a cinnamonpowder of deposited spores, dull brown to cocoa brown. Lower fertile surface poroid, round, regular, pores 3–5 per mm, cream toumber brown. Context up to 3.8 cm thick at base. Tubes up to 1.5 cm long.Hyphal system trimitic, generative hyphae 1.5–2.5 µm wide, skeleton-binding hyphae 2–5 µm wide, binding hyphae 1–2 µm wide. Spores 7–13 × 5–8.5 µm, ovoid to broadly ellipsoid.

Hexagonia sp.
Fruit body annual, solitary or in groups, resupinate, effused-reflexed to pileate. Pileus 4.4–8.9 × 2.6–3.7 × 0.3–2.1 cm, semicircular, applanate.Upper surface sterile, smooth concentrically zonate, sulcate, glabrous, greyish brown to teak brown. Lower fertile surface poroid1per mm wide, angular to hexagonal, teak brown to brownish grey. Context up to 0.8 cm wide, homogenous. Tubes up to 1.3 cm long, homogenous, lacerate.Hyphal system trimitic; generative hyphae 2–3.5 µm wide, skeletal hyphae 3.5–6.5 µmwide, binding hyphae 4.5–5.5 µm wide. Spores 5–7.5 × 3–4.5 µm, cylindrical.

HypoxylonhaematostromaMont
Fruiting body annual, resupinate, 0.5–16.2 × 0.4–4.9 × 0.1–0.3 cm. Fertile surface minutely papillate, cinnabar red to blood red when fresh, venetian red to reddish brown when mature. Context papery thin, homogenous. Perithecia

long tubular 900–2300 × 200–600 µm. Ostioles are lower than stromatal surface. Asci 150–200 × 6–9 µm, broadly cylindrical, 8-spored. Spore 15–18 × 5.5–8.5 µm, elliptic-fusiform.

Leucocoprinuscepistipes(Sowerby) Pat.
Fruiting body annual, solitary or in groups,up to 13 cm high, fleshy fibrous and tough when fresh. Pileus1.7–4.4 cm in diameter, obovoid then conical, obtusely umbonate, finally comanulate or expanded, truncate at centre, chalky white with pale pink tints. Gills free 14–18 per cm, rather crowded, creamy white. Context thin, soft, solid but becoming hallow with maturity. Stalk 3.5–8.6 × 0.5–1.2 cm, cylindrical, sub-bulbous base, slightly fibrillose, with powdery coating on the surface. Annulus. Spore print white.Hyphal system monomitic; generative hyphae 3–5 µm. Spores 7.5–10 × 5–7 µm, ovoid.

Leucocoprinusfragilissimus(Ravenel ex Berk. & M.A. Curtis) Pat.
Fruiting body annual, solitary or in groups, up to 13 cm high, fleshy. Pileus 3–3.8 cm in diameter, flat to planoconvex, with slightly depressed at centre, surface covered with minute squamules radiating sulcate, white with greenish tint, and olive brown at centre. Gills free 7–10 per cm, sub-distant to close creamy white. Stalk 3–6.1 × 0.1–0.3 cm, cylindrical, equally or gradually tapering towards apex, fibrous, squamulose, hallow, creamy to dull. Context very thin. Annulus present. Spore print white.Hyphal system monomitic; generative hyphae 3.5–12 µm wide. Spores 8.5–13.5 × 5.5–7.5 µm, ellipsoid.

Lophariacinerascens(Schwein.) G. Cunn.
Fruiting bodyannual, gregarious, resupinate, effused-reflexed to pileate1.6–109 × 1.4–20.4 cm up to 0.1 cm thick. Pileus 1.5–47.7 × 1.4–2.1 cm up to 0.1 cm thick, umbonate, sometimes semicircular. Upper surface sterile, azonate to concentrically zonate, sulcate, velvety to tomentose, clay to camel brownto smoky brown. Lower fertile surface, smooth, indistinguishably sulcate with maturity, cracked when mature, clay to to smoky brown. Context thin, homogenous.Hyphal system monomitic; generative hyphae 3–6 µm wide. Spores 7–9 × 3–4 µm, cylindrical to ellipsoid.

Phanerochaetesordida(P. Karst.) J. Erikss. &Ryvarden.
Fruiting bodyannual, resupinate, 2.8–15.7 × 1–11.4 cm, up to 0.3 cm thick, initially arises as small creamy patches then growing in all directions, widely effused, membranous, leathery when fresh, brittle on drying, broadly elongated, smooth, creamy white to pale yellow brown. Fertile surface smooth, cracked on drying, creamy white) to straw yellow when fresh, on drying pale to pale yellow brown Context thin.Hyphal system monomitic; generative hyphae 3.5–6.5 µm wide. Spores 5.5–8 × 3–5 µm, broadly ellipsoid.

PhellinusmoriY.C. Dai & B.K. Cui.
Fruiting body annual to perennial, solitary, resupinate, 10.2–28.6 × 3.8–12.6 × 0.1–0.6 cm. Fertile surface poroid, round, regular, pores 5–7 per mm, yellowish brown to golden brown when young, umber brown to reddish brown in old fruiting bodies, glancing when turned in incident light. Context very thin or almost absent. Tubes up to 0.3 cm deep in each layer. Hyphal system dimitic; generative hyphae 1.5–3 µm wide, skeletal hyphae 3–5 µm wide. Spores 4–5 × 3–4.2 µm, broadly ellipsoid to subglobose.

Phlebiopsiscrassa(Lév.) Floudas&Hibbett.
Fruiting body annual, resupinate, 1.3–12.8 × 1.1–6.7 × 0.1–0.2 cm thick,initially arising as small patch then growing in all direction, membraneous to more or less leathery when fresh, brittle on drying, purplish pink to pale violet to violet brown. Fertile surface when young velvety gradually surface become smooth, cracked on drying, grayish violet to dull violet to grayish brown. Context papery thin on drying.Hyphal system monomitic; generative hyphae 2.5–8.5 µm wide. Spores 6–8 × 3–4 µm, narrowly ellipsoid.

Phylloporiapectinata(Klotzsch) Ryvarden.
Fruiting body annual to perennial, solitary or in groups, pileate. Pileus 3.6–4.2 × 2.5–12.1 × 0.2–4.3 cm, semicircular, applanate, frequently imbricate with several pilei from a common base. Upper sterile surface velvety, sulcate, brownish black to cinnamon. Lower fertile surface poroid, round, regular, pores 5–6 per mm, glancing on turning to incident light, yellowish brown to dark brown. Context up to 0.6 cm thick, duplex. Tubes up to 0.3 cm deep, lacerate.Hyphal system monomitic; generative hyphae 1.5–5 µm wide. Spores 3–3.5 × 2–3 µm, globose to sub-globose.

Pleurocybellaporrigens(Pers.) Singer.
Fruiting body annual, solitary or in groups, fleshy. Pileus1.8–8.4 × 1.4–6.6cm, smooth when mature, creamy white when young, creamy white to greyish when matured, finally ochraceous. Stalk 1.1–3.9 × 0.3–0.8 cm, cylindrical, lateral, creamy white at base, slightly greyish at upper part. Context homogenous. Spore print white.Hyphal system monomitic; generative hyphae 2.5–10 µm wide. Spores 6.5–9 × 4.5–6 µm, ellipsoid.

Pleurotusostreatus(Jacq.) P. Kumm.
Fruiting body annual, solitary or in groups, fleshy. Pileus 3.8–7.1 × 3.4–6.4 cm, pleurotoid, smooth to slightly squamulose when mature, greyish to greyish brown when young, finally ochraceous. Gills decurrent, 9–10 per cm, creamy white when young becoming ochraceous at maturity. Stalk 2.1–3.9 × 0.3–0.7 cm, cylindrical, lateral, creamy white at base, slightly greyishat upper part. Context homogenous. Spore print white.Hyphal system monomitic; generative hyphae 3–6.5 µm wide. Spores 8.5–15 × 4.5–6.5 µm.

Psathyrellacandolleana(Fr.) Maire.
Fruiting body annual, solitary or in groups, fleshy, medium sized. Pileus 1.7–4.7 cm in diameter, rounded, conical then convex, when young, convex expanding to applanate when mature, cream grey to dull brown. Gills free, 13–15 per cm, close to rather crowded, greyish to dark brown. Stalk 2.8–6.9 × 0.3–0.6 cm, central, swollen at base, tapering toward apex, smooth, solid, greyish white. Context papery thin, fleshy, homogenous. Spore print dark brown.Hyphal system monomitic; generative hyphae 3–22 µm wide. Spores 6.5–7.5 × 3–5 µm, ellipsoid.

TrametesellipsosporaRyvarden.
Fruiting bodyannual, solitary or in groups, resupinate to effused reflex to pileate. Pileus 2.4–5.2 × 1.6–2.9 × 0.1–0.4 cm thick near the base,semicircular, applanate, persistantstrigose hairs, shiny, sulcate, weakly zonate, cream to pale yellow to pale orange. Lower fertile surface poroid 3–5 per mm pores,decurrent, angular, irregular, toothed, iripicoid to maize like, cream to ochre orange. Context up to 0.2 cm thick, fibrous, hard, duplex. Tubes up to 0.2 cm wide, lacerate.Hyphal system trimitic; generative hyphae 2–3 µm wide,skeletal hyphae 2.5–5.5 µm wide, binding hyphae 1.5–3.5 µm wide. Spores 3–5 × 2–3.5 µm, ellipsoid.

Xylaria multiplex (Kunze) Fr.
Fruiting bodyannual, in groups 2.4–3.9 × 0.1– 0.3 cm. Fertile surface clavate, elongated, cylindrical, undulated (grooved and ridge), apex round to acute below smoky-white conidial deposits, finally turning into purplish deposition purplish blackto blackish brown. Stalk short, cylindrical, and sterile. Context homogeneous. Perithecia 1700– 4400 × 300–600 µm, embedded in fertile head. Asci 110– 120 × 5–7 µm cylindrical, stipitate, 8-spored, septate at base. Spores 9–10.5 × 4–6µm,uniseriate, ellipsoid-equilateral.

Photo plate - 1

Table 1:- List of Host infected by wood-rotting fungi and its locality.

Botanical Name	Family	Host	Locality	Latitude & Longitude
Ascomycota				
Daldiniaconcentrica(Bolton) Ces. & De Not.	Hypoxylaceae	Acacia nilotica (L.) Delile	YermalaTq. Kallam	18º23′34″N 75º52′44″E
Xylaria multiplex (Kunze) Fr.	Xylariaceae	Acacia nilotica (L.) Delile	Rui, TqParanda	18º16′08″N 75º29′15″E

Basidiomycota				
Auriculariani gricans(Sw.) Birkebak, Looney & Sánchez-Garcia,	Auriculariaceae	***Azadirachta indica*** A.Juss.	Ranjani, Tq. Kallam	18º32'40"N 76º15'16"E
Crepidotusvariabilis(Pers.) P. Kumm.	Crepidotaceae	***Acacia nilotica*** (L.) Delile	Shendi, Tq. Washi	18º34'08"N 75º47'01"E
Cyathusstriatus(Huds.)Will d	Incertaesedis	***Acacia nilotica*** (L.) Delile	Upala, Tq. Dharashiv	18º14'20"N 76º03'20"E
Dacryopinaxspathularia(Sc hwein.) G.W. Martin.	Dacrymycetaceae	***Ficus benghalensis*** L.	Warewadgao n, Tq. Bhoom	18º28'02"N 75º37'02"E
Exidiarecisa(Ditmar) Fr.	Auriculariaceae	***Acacia nilotica*** (L.) Delile	Dudhi, Tq. Paranda	18º16'09"N 75º29'30"E
Favolusgrammocephalus(B erk.) Imazeki.	Polyporaceae	***Zizyphus mauritiana*** Lam	Shingoli, Tq. Dharashiv	18º15'09"N 76º01'32"E
Fomitopsissp.	Fomitopsidaceae	***Acacia nilotica*** (L.) Delile	Dharashiv, Tq. Dharashiv	18º10'32"N 76º01'39"E
Funaliafloccosa(Jungh.) Zmitr. &Malysheva	Polyporaceae	**Zizyphus mauritiana** La m	Nawalgaon, Tq. Bhoom	18º26'36"N 75º37'02"E
Fuscoporiasenex(Nees& Mont.) Ghob.-Nejh	Hymenochaetaceae	***Azadirachta indica*** A.Juss.	Shendi, Tq. Washi	18º34'13"N 75º46'56"E
Ganodermaaustrale(Fr.) Pat.	Polyporaceae	***Mangifera indica*** L.	Shiradhon, Tq. Kallam	18º30'29"N 76º10'13"E
Hexagonia sp.	Polyporaceae	***Peltophorum pterocarpum*** (DC.) K.Heyne	Katrabad, Tq. Paranda	18º34'13"N 75º46'56"E
Hypoxylonhaematostroma Mont	Hypoxylaceae	***Azadirachta indica*** A.Juss.	Dharashiv, Tq. Dharashiv	18º10'27"N 76º01'40"E
Leucocoprinuscepistipes(So werby) Pat.	Agaricaceae	***Ficus benghalensis*** L.	Tuljapur, TqTuljapur	18º01'15"N 76º04'11"E
Leucocoprinusfragilissimus (Ravenel ex Berk. & M.A. Curtis) Pat.	Agaricaceae	***Eucalyptus obliqua***L'Hér.	Sanja, Tq. Dharashiv	18º11'59"N 76º04'30"E
Lophariacinerascens(Schw ein.) G. Cunn.	Polyporaceae	***Leucaena leucocephala*** (L am.) de Wit	Tuljapur, TqTuljapur	18º00'27"N 76º03'56"E
Phanerochaetesordida(P. Karst.) J. Erikss. &Ryvarden.	Phanerochaetaceae	***Tamarindus indica*** L.	Sanja, Tq. Dharashiv	18º12'01"N 76º04'40"E
PhellinusmoriY.C. Dai & B.K. Cui.	Hymenochaetaceae	***Acacia nilotica*** (L.) Delile	Ranjani, Tq. Kallam	18º32'40"N 76º14'60"E
Phlebiopsiscrassa (Lév.) Floudas&Hibbett.	Phanerochaetaceae	***Delonix regia*** (Hook.) Raf.	Dharashiv, Tq. Dharashiv	18º10'40"N 76º01'40"E

Phylloporiapectinata(Klotzsch) Ryvarden.	Hymenochaetaceae	***Acacia nilotica*** (L.) Delile	Tuljapur, TqTuljapur	18°00′17″N 76°04′04″E
Pleurocybellaporrigens(Pers.) Singer.	Incertaesedis	***Jatrophacurcas*** L.	Apsinga, TqTuljapur	18°03′29″N 76°02′58″E
Pleurotusostreatus(Jacq.) P. Kumm.	Pleurotaceae	***Mangifera indica*** L.	Ranjani, Tq. Kallam	18°32′40″N 76°15′01″E
Psathyrellacandolleana(Fr.) Maire.	Psathyrellaceae	***Senna siamea*** (Lam.) H.S. Irwin &Barneby	Dharashiv, Tq. Dharashiv	18°10′30″N 76°01′40″E
TrametesellipsosporaRyvarden.	Polyporaceae	***Azadirachta indica*** A.Juss.	Apsinga, TqTuljapur	18°03′29″N 76°02′59″E

Conclusion:-

Survey and collection of wood-rotting fungi were conducted during the year 2021-2023 month from July to November from different sites of Dharashiv [Osmanabad] district (M.S.) India. One hundred and seven specimens of macro-fungi were collected, according to macroscopic and microscopic character twenty-four different types of genera and twenty-five species, were studied (Photo plate 1 & Table 1), which belong to twelve families. Phyla Ascomycota belongs to two families, two genera, and two species, and Phyla Basidiomycota belongs to ten families, twenty-two genera, and twenty-three species. Polyporaceae is the most dominating family and consists of six genera. From the above observation and discussion, it is concluded that *Auriculariani gricans, Daldiniaconcentrica, Dacryopinaxspathularia, Favolusgrammocephalus, Funaliafloccosa, Fuscoporiasenex, Hypoxylonhaematostroma, Leucocoprinuscepistipes, Leucocoprinusfragilissimus, Lophariacinerascens, Phanerochaetesordida, Pleurocybellaporrigens, Psathyrellacandolleana,* and*Xylaria multiplex*is most dominating macro-fungi and *Crepidotusvariabilis, Cyathusstriatus, Fomitopsissp, Ganodermaaustrale, Hexagonia sp, Phellinusmori, Phlebiopsiscrassa, Phylloporiapectinata, and Trametesellipsospora*are rarely observed macro-fungi, belongs to twelve hosts *Acacia nilotica, Azadirachtaindica, Delonix regia, Eucalyptus obliqua, Ficusbenghalensis, Jatrophacurcas, Leucaena leucocephala, Mangifera indica, Peltophorum pterocarpum, Sennasiamea, Tamarindus indica,* and*Zizyphusmauritiana.*

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Research Article

Medicinal Plants Survey in Dharashiv District of Balaghat Region in Maharashtra

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Abstract

India is one of the diverse countries in the world, rich in medicinal plants. From time immemorial scholars like Charka, Baradhwaj, Athreyan, Agnivesha, Dhanyandhari, Shushruthan, Wakbadan and Bharathduja etc. have studied and explored the possibility such a diversity for human welfare. In Maharashtra,in rural areas of Balaghat region, people are familiar with medicinal plants.Balaghat region occupied in district like Ahmadnagar, Beed, Latur, Dharashiv, and Solapur. In this paper,people from rural as well as tribal communities were interviewed.All information regarding medicinal plants and their role for treating human diseases were collected.This survey was done during October 2019 to April 2020 in the area of Dharashiv district.

INTRODUCTION

Ayurveda-the science of life, prevention and longevity, is the oldest and most holistic of comprehensive medical system available. It was placed in written form over 2000 years ago. Ayurveda is said to have been first complied as a text by charaka and renamed as *Charaka Samhita* (completed by Dhridhabala). The concept of medicines envisaged in the Ayurveda comes from the monumental scripture called *Ashtanga hridaya* and *Sahasrayoga*, Gayatri R. (2008).

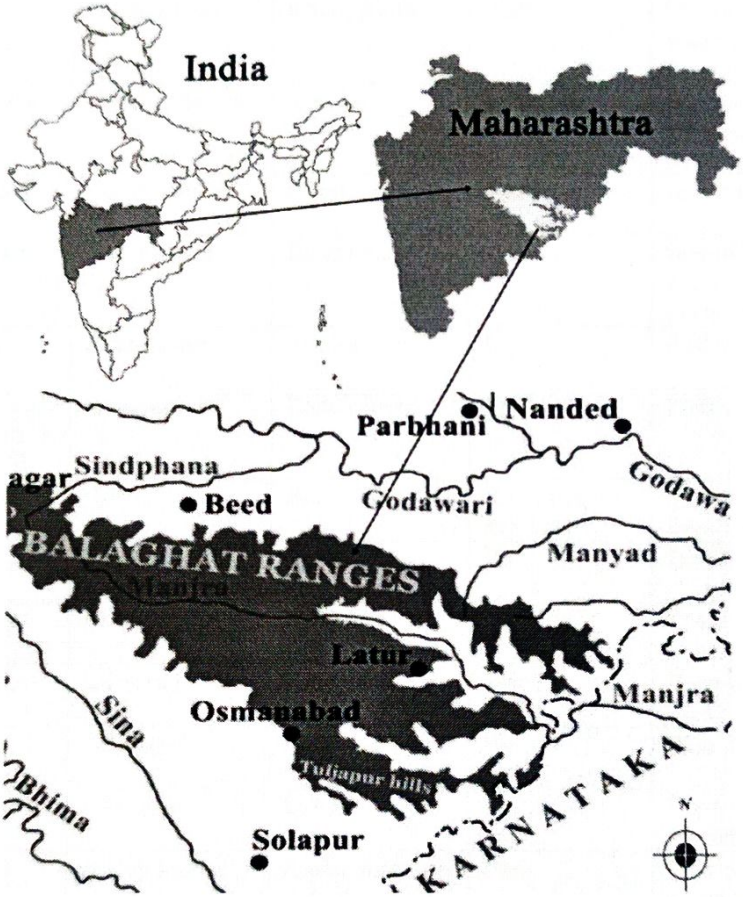
Medicinal plants by definition are used in health care many of the world population cannot afford medicine, which are main plant based. In India, the main traditional systems of medicine include Ayurveda, Unani and Siddha use over 7,500 plant species have been reported. Traditional healers provide considerable information about the use of many plants or plant parts as medicine. It has been estimated by the world's health organization (2003) that 80% population of the developing countries is unable to afford pharmaceutical drugs and relies on traditional medicine to meet their daily health requirements. Plants are logical sources for new drugs discovery and currently many thousands are being screened for biological activities in order to develop from plant species and future demands should be met from cultivated sustainable species.

Balaghat region is the series of hill in Maharashtra state. It originating in the Western Ghat at Harichandra ranges. It extends southeastward for about 200 miles (320 K. M.) to the border of Maharashtra and Karnataka. Its width varies from 3 to 6 miles (5 to 9 K. M.). Balaghat hills have elevations of 1800 to 2700 feet (550 to 825 meters). It occupies Ahmednagar in the west; it occupies Ahmednagar in the west, border of Beed district in the east. It has 2500 feet height from the sea level. Beed district occupies major portion in Balaghat region, Beed District spreads 10615.3 Sq. K.ms. Entire Districts of Latur is Situated on the Balaghat Plateau. It is 540 to 638 meters from sea level. Area of Latur District is 7372 Sq. K.ms.

The most of the Osmanabad District is surrounded by small mountains called Balaghat. Bhum, Washi, Kalamb, Osmanabad, Tuljapur Tahsil lie in the range of this Balaghat Mountains some part of major rivers like Godavari and Bhima come under this District. Part of Solapur district. Balaghat mountain range is an eastward spur of Western Ghats of India(Sahyadri Mountain) running north-west to south-east in Maharashtra.

It is located from N 18°47'40.26" to 18°32'29.28" and E 75°20'26.90" to 76°48'56.18" Latitude in the basins of river Manjra, Sindphana and Sina and their tributaries mainly spreads over Ahmednagar, Beed Latur, Osmanabad and Solapur districts. Balaghat occupies an area about 18,111.34 km^2 in Maharashtra.

The entire Balaghat region is situated at an average height ranges between 610-792 m above mean sea level, sloping towards the south and east, forming the water divide between the Godavari River and Krishna river valleys. Except the southern and western parts of the Balaghat region, which are drained by the tributeries of the Bhima River, the rest of the region is drained by the Manjra and Sindhphana river and their tributeries belonging to the Godavari system.



MATERIALS AND METHODS

The present study was based on the extensive field surveys was done by frequently arranged collection tours to different villages of the Balaghat region during different seasons, winter, summer and rainy seasons of the years from July 2012 and continued up to July 2016. In four years frequent visit, where made in order to cover different locality in Balaghat region. During survey participatory interview tools including group discussion informal meetings questionnaire, survey and field observation were used for primary data collection survey were done in Balaghat. Bhum, Washi, Kalamb, Osmanabad, Tuljapur, Naldurgh,

The gathered information was documented and analyzed for various parameters collection of fresh plant samples was done and identified with help of different floras and books. Medicinal plants, Jain S. K. (1968). Flora of Presidency of Bombay, I-III by T. Cooke, Flora of Osmanabad - V. N. Naik (1979), Flora of Marathwada - V. N. Naik (1998), Tree flora of Balaghat ranges of Maharashtra - Gaikwad S. P. & R. D. Gore (2015), Flora of Kolhapur District - S. R. Yadav and M. M. Sardesai (2002) and Flora of Solapur District - Gaikwad

S. P. & K. U. Garud (2015), Flora of Beed District Rothe S. P. (1984). Some materials thus collected was properly processed and finely made in herbarium specimen.

RESULTS & DISCUSSION

During investigation a total 50 families were recorded with their botanical name, family, local name parts used method of preparation and traditional uses.

Sr. No.	Botanical Name	Family	Common name	Plant parts used	Diseases
1	*Abrus precatorius* Linn	Fabaceae	Gunj patta	Leaves.	Sore throat
2	*Acacia catechu* (Roxb. Ex Rottl.) Willd.	Mimosaceae	Khair, Kattha	Bark	Diarrhoea, Cough, Skin wounds and intermittent fever.
3	*Achyranthes aspera* Linn.	Amaranthaceae	Aghada	Leaves and seeds	Scorpion sting, Kidney stone, Diarrhoea and dysentery and Snake bite.
4	*Adansonia digitata* Linn.	Bombacaceae	Gorakh Chinch	Seeds	Intermittent fever
5	*Adiantum capillus-veneris* Linn.	Adiantaceae	Kalarajhans	Leaves	Jaundice and hepatitis , excess white discharge during menstruation
6	*Adhatoda vasica* Nees	Acanthaceae	Adulsa	Leaves	Asthma and cough
7	*Andrographis paniculata* (Burm f. Wall.	Acanthaceae	Kade Chirait	Entire plants	Pitta
8	*Aegle marmelos* (L.) Corr.	Rutaceae	Bel	Root, Leaves and Fruit	Diarrhoea, dysentery and intestinal worms.
9	*Ailanthus excelsa* Roxb.	Simaroubaceae	Maharuk, Ghod-limb	Bark	Jaundice
10	*Albizzia lebbeck* (L.) Willd.	Mimosaceae	Shirish	Bark	Tooth ache and gum infection
11	*Aloe barbadensis* Mill.	Liliaceae	Korphad	Leaves	Burn wounds and Asthma
12	*Allium cepa* Linn	Alliaceae	Kanda, Piaz	Bulb	Skin disease and epilepsy
13	*Allium sativum* Linn.	Alliaceae	Lasun	Flakes	Cold, cough, appetizer and ear ache
14	*Alstonia scholaris* (L.) R. Br.	Apocynaceae	Saptaparna, Satvin.	Bark	Diarrhoea, stop bleeding wounds & asthma
15	*Amaranthus spinosus* Linn.	Amaranthaceae	Katemath	Leaves & entire plant	Inflammation and Abscess
16	*Annona squamosa* Linn.	Annonaceae	Sitaphal	Roots & Seeds	To cure unripe warts
17	*Asparagus racemosus* Willd.	Liliaceae	Shatawari	Rhizome	Increase breast milk, reduce high blood pressure and diarrhoea
18	*Argyreia nervos* (Burm F) Boj.	Convolvulaceae	Samudra shok	Leaves	Diabetes
19	*Aristolochia bracteata* Lamk.	Aristolochiacea e	Kidamari	Leaves	Snake bite
20	*Azardirachta indica* A. Juss.	Meliaceae	Kadu limb, Neem	Bark Leaves & flowers	Diabetes, skin disease and intestinal problem
21	*Baccopa monnieri* (L.) Wettst.	Scropulariaceae	Neerbrahmi	Entire plants	Cough and blood purifier
22	*Balanites aegyptiaca* (L.) Del.	Balanitaceae	Hingan Bet	Fruit and seeds	Bur sores and skin disease

23	*Barleria prionitis* Linn.	Acanthaceae	Koranti	Entire plants	Tooth ache and paralysis
24	*Biophytum sensitivum* (L.) DC.	Oxalidaceae	Lajalu, Lajari	Entire plants	To stop nose bleeding
25	*Boerhavia diffusa* L.	Nyctaginaceae	Punarnawa, Khapara	Roots & Leaves	Weak in eyesight
27	*Boswellia serrata* Roxb.	Burseraceae	Salai	Gum	Piles, ulcers, jaundice and asthma
28	*Butea monosperma* (Lam) Taub.	Fabaceae	Palas	Bark, gum, flower and seeds	Diarrhoea , dysentery, diabetes , bone fracture and ring worm
29	*Caesalpinia bonduc* (L.) Roxb.	Caesalpiniaceae	Gajga, Sagargota	Seed	Sore throat, lukewarm, diarrhoea and joint pains
30	*Calatropis gigantea* (L) R. Br.	Asclepiadaceae	Rui, Ruchki.	Leaves	Head ache
31	*Calatropis procera* (L) R. Br.	Asclepiadaceae	Rui, Ruchki.	Leaves, flower and Roots	Ear ache, intermittent fever, abscess and reduce swelling
32	*Carica papya* Linn.	Caricaceae	Papai	Leaves & Fruit latex	Cough, cold, abdominal pains and tooth ache
33	*Carissa carandus* Linn.	Apocynaceae	Karawand	Fruits	Diabetes and indigestion
34	*Caralluma adscendens* (Roxb.) R. Br.	Asclepiadaceae	Makad sing	Tender shoot	Acidity and induce profuse lactation
35	*Cassia auriculata* Linn.	Caesalpiniaceae	Tarwad	Leaves	Reduce swelling
36	*Cassia fistula* Linn.	Caesalpiniaceae	Bahava, Amaltas.	Fruits	Intestinal worm and black fever
37	*Cassia tora* Linn.	Caesalpiniaceae	Tarota	Leaves, & Seeds	Skin disease like ring worm and diarrhoea
38	*Celosia argentea* Linn.	Amaranthaceae	Kurdu	Seeds	
39	*Centella asiatica* (Linn.) Urb.	Apiaceae	Bramhi	Leaves	Dysentery
40	*Citrus medica* Linn	Rutaceae	Kaaghzi limbu.	Fruit	Vomiting , scabies and severe itching
41	*Citrullus colocynthis* (L.) Schrad	Cucurbitaceae	Indrayan	Fruit	Irregular menstruation, abdominal pains and scorpion sting
42	*Cissus quandrangularis Linn.*	Vitaceae	Hadsakhal, Kand vel	Entire plants	Bone fractured
43	*Clitoria ternatea* Linn.	Fabaceae	Gokarna	Leaves	Joint pains
44	*Cleome viscosa* Linn.	Cleomaceae	Piwali tilwan	Leaves	Head ache
45	*Clerodendron multiflorum* (Burm. F.) O	Verbenaceae	Taklan, Takalni, Eran	Leaves and roots.	Reduce swelling and chest pains
46	*Coccinia grandis* (L.) Voigt.	Cucurbitaceae	Tondale	Roots, leaves & fruit	Abscess
47	*Cocos nucifera* Linn	Arecaceae	Naral, Narial	Fruit shell	Tooth ache
48	*Cocculus hirsutus* (L.) Diels	Menispermacea e	Vasan wel	Leaves	Loose motion
49	*Colocasia esculenta* (L.) Schott	Araceae	Alu	Entire plants	
50	*Commelina benghalensis* Linn.	Commelinaceae	Kena	Younger leaves	General weakness

51	*Cordia dichotoma* Forst.	Ehretiaceae	Bhokar	Bark	Irregular menstruation Limb and bone fracture
52	*Cucumis callosus* (Rottl.) Cogn. Roxb.	Cucurbitaceae	Shendadi, Kateri chitravali	Fruit	Abdominal pains, jaundice and tooth ache
53	*Cucumis sativus* Linn.	Cucurbitaceae	Kakadi and Khira	Fruit	Jaundice and kidney disease
54	*Cyamopsis tetragonoloba* (L. Tabu	Fabaceae	Gawar	Fruits	Night blindness
55	*Cynodon dactylon* (Linn) Pers.	Poaceae	Durwa, Harali.	Leaves	Loose motion with blood
56	*Cymbopogon citratus* (DC) Stapf	Poaceae	Gavatichaha	Leaves	Cold
57	*Cyperus rotundus* Linn	Cyperaceae	Nagarmotha, Laval	Rhizome	Dermatitis
58	*Dendrocalamus strictus* Nees	Poaceae	Velu.	Seeds	Rheumatism
59	*Diospyros melanoxylon* Roxb.	Ebenaceae	Temru, Tendu, Temburni	Fruit	Diarrhoea , dysentery and intermittent fever
60	*Dioscorea bulbifera* Linn	Discoriaceae	Dukkar Kand	Rhizome	Increase lactation
61	*Dregea volubilis* (L.F.) Benth. Ex Hook.	Asclepiadaceae	Hiran Dodi	Leaves latex	Cold
62	*Drimia indica* (Roxb.) Kunth	Liliaceae	Ran Kanda, Jungli piaz	Bulb	Abdominal pains
63	*Eclipta alba* (L.) Hassk	Asteraceae	Maka	Leaves and flower	Scabies and hair fall
64	*Evolvulus alsinoides* Linn	Convolvulaceae	Vishnu Kranta	Entire plants	Cough, cold, asthma and bronchitis
65	*Euphorbia hirta* L	Euphorbiaceae	Dudhani, Dudhi	Leaves	Asthma, bronchial affection and dysentery
66	*Ficus benghalensis* Linn	Moraceae	Wad	Root , stem latex &leaves	Normal bone fracture and burn
67	*Ficus* racemosa Linn.	Moraceae	Umbar	Root, leaves & stem latex	Norman bone fracture
68	*Ficus religosa* Linn	Moraceae	Pimpal	Bark & leaves	Tooth ache, Abscess and jaundice
69	*Gloriosa superba* Linn,	Liliaceae	Khdya naag, Kal lawi	Root & stem	Easy delivery of pregnant women
70	*Glossocardia bosvalle* (L.F.)DC.	Asteraceae	Khadak shepu, puneri	Leaves	Promote healing of sores and wounds

Conclusion

The main threats to the conservation of medicinal plants in the area are unsustainable harvesting by the local people, illegal collection inside the forest area, grazing in high pastures, collection of premature plants and collection of whole underground parts.

Scientific studies may elaborate the prospects of growing more and more medicinal plants successively. By order proper management of medicinal plants remarkable improvement may be made on the earning of foreign exchange for the country.

Considerable amount of information on the traditional uses of plants appears available with the people of the Balaghat region. It is feared that due to ready availability of medicine in modern period, knowledge of traditional medicinal plants may be lost in course, senior villagers expressed their fear as the coming generations ignore their knowledge and experience.

Documentation of tribal knowledge is the most difficult and intellectually challenging task, as it involves identifying knowledgeable people, village elders, tribal chiefs, traditional health practitioners (THPs) Communities etc. and securing their cooperation.

Indigenous knowledge lacks due recognition and adequate modern documentation and is fast diminishing. An urgent action is needed to document this traditional Knowledge or indigenous Knowledge systems.There is an urgent need of Ayush hospitals in rural areas for intensive and critical evaluation of all medicinal claims and documents them for health care.

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या संस्थेचे त्रैमासिक

।। संशोधक।।

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Abstract :

Modern times have witnessed surge in the various types of investments including stock market and banks. The reason for such upsurge is the number of options available for investments in the modern times. Along with this, there is an increase in the number of investors as from college going youngsters to senior citizens everybody is investing irrespective of gender. All people are conscious nowadays about their future needs and so they study various options for investments assuring good returns and invest for the growth of wealth. The role of women investors is also increasing during this time and there is a need to explore their preferences regarding various types of investments and their level of financial literacy. Thus the current research paper studies their preferred investment option, impact of their age on technical analysis of investments and the level of financial literacy existing among women respondents in Thane district.

Keywords : Women investors, Attitude, Financial literacy

Introduction :

An essential component of people's lives is investment. A financial asset bought with the expectation that it will increase in value and provide income in the future is referred to as an investment in the finance world. Nowadays every college going youngsters including men as well as women are interested in making stock market investments. They wish to make their future safe and for them investing in any alternative depend upon the investors' wants and specifications. It is the fact that we all will agree that every investor irrespective of their gender must evaluate potential investments in terms of risk, return, terms, ease of use, liquidity, and other factors before making a purchase. Investors search for the greatest investing platform before making an investment and this requires planned decision-making after consulting experts and friends to get knowledge about the various elements that affect their judgments in order to ensure timely and accurate decisions. A number of criteria, including return, time horizon, investor experience, and others, might affect an investment decision. Return holds greater significance. Every investor hopes to increase their return on investment. The investment venues that are available in our market include bank deposits, real estate, gold, the stock market, and others.

Statement of the problem :

Majority of such research is done in various places and on different types of investors. However no much research is found on women investors in Thane district. The reason for such lag might be women attitude of not to invest in the stock market due to lack of awareness and financial literacy. Ajzen (1991) asserts that women's lack of awareness and engagement are the primary causes of their noninvestment in the stock market. He made an effort to investigate investor behavior and came to the conclusion that women investors'

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primary concerns are significant stock market volatility and insecurity. The purpose of this study is to close the gap by investigating the attitudes of female investors in Thane district. Since women nowadays are

Review of Literature :

Chavali and Mohanraj (2016), Nigam et al. (2018), Kumar et al. (2018), Baker et al. (2018), and many more researchers found numerous other aspects influencing the investor's financial decision-making process. They contend that because people frequently make biased decisions based on their characteristics, gender, how they utilize their money, and other financial activities, they are incapable of making rational decisions on a consistent basis. They contend that people's decisions about their finances are greatly influenced by both their own attitudes and feelings and by prevailing market

in an individual's decision to invest in any asset or to engage in financial activity while managing an entrepreneurial portfolio. Fisher and Statman (2000), Kumar and Goyal (2015), and Kleinübing GoDoi et al. (2005) contend that when making investments, investors are influenced by prejudice and end up making illogical choices. Furthermore, as Kleinübing GoDoi et al. (2005) pointed out, cognitive biases result from faulty reasoning that has its roots in time, ignorance, and inattention. Fisher and Statman (2000) found that investors who overestimate their ability to make decisions have an overconfidence bias.

Objectives of the study :

1) To study the preference of women investors towards different investment options
2) To explore the determinants of the preference