FUNGAL FLORA OF RADHANAGARI (KOLHAPUR)

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INTRODUCTION

Western Ghats provide the good amount of the biologically important resources for Botanists and Zoologists, therefore, it becomes the focal point to which several students of botany visit for botanical purpose. Radhanagari taluka of Kolhapur District as a whole is botanically unexplored except for a few passing remarks.

Many workers like Blatter (1909), Birdwood (1887), T.Cooke (1901-1908), Razi (1962), Puri and Mahajan (1960), Thakar et al (1962), Santapan (1962), Blatter and Almeida (1922), Mahajan and Diwan (1968), Mahajan and Vaidya (1969), Agashe (1968) and Bagawat (1968) have studied the vegetation. However, most of these workers concentrated their attention on angiosperms and ferns; only few workers studied the lower cryptogams.

As regards fungi, Parandekar (1964), Patil (1966), Kotwal (1969), Pawar (1971,1973), Patil and Thite (1970-75), Kulkarni and Thite (1975), Chavan (1968) studied the southern parts of Western ghat. But nobody worked out systematically the fungal flora of this region. The rich vegetation also harbors plenty of the micro-organisms and, therefore, authors started to work out systematically the fungi occuring in this region from 1973.

Along with preliminary investigations of fungal flora other features like physiographic, geological, soil and climatic are also

recorded of this area.

OBSERVATIONS

Physiographic features : Radhanagari is situated at 16°.30' N and 74°.00' E. The area under investigation measures about 5000 sq.kms. (200 sq. miles). Its altitude varies from 915 M (3000') to 549 M (1800'). The main north-south range of Sahyadri, with its precipitous sudden and steep slopes (over 1200' high), commonly known as Western Ghats, cuts off the area from 64 kms (40 miles) wide coastal blet of Konkan.

The characteristic strip of laterite table land at the top of the mountains is hardly 3.2 kilometer (2 miles) in width. The main range has sent five north-eastern offshoots in this part, whihh gradually merged with Deccan Plateau within a distance of about 16-32 milometer (10-20 miles). Out of the four rivulets running through the wide valleys formed by these subrange the northern ones, namely Dhamani and Tulashi, are very small but the southern rivers Bhogawati and Doodhaganga are important tributries of the river Krishna. The river Bhogawati turned into an extensive lake (4256 Acres) called "Laxmi-Talao" by construction of big dam to the west of the Radhanagari, in 1953. These valleys, riverbedds, and dam area provided the lovely, picturesque landscape of the typical extensive subtropical evergreen forest on the West.

Geology and Soil : The typical gravelly, red soil of the whole area has occured, out of partial disintegration of the highly porous laterite strata resulting out of the lignious trap formation of the Deccan Plateau.

Shallow layers of poor soil on lands left exposed by indiscriminate cutting and felling of the original rich natural vegetation for octannial or occasional cultivation, have been completely washed off, exposing the underlined besalt at many places. As a contrast to this, at many other places high land show a considerable depth of loose soil accumulated above the rock.

The highly porous soil is supersaturated with water in monsoon where water level goes considerably below the ground level soon after the monsoon, bringing about severe drought conditions. Bauxite, the chief mineral of economic value, occurs in large quanitites as laterite cappings at various places near Radhanagari and Vaki. With high ferrous and aluminium contents the acidic soil is deficient in Mg, K, and Ca.

Towards the West, under impenetrable cover of the luxurient forests, heavy accumulation of humus, provides the considerable numbers of microflora which by humification inriched the nitrogen content of the soil.

Climate : The climate of this area is in general temperate and agreeable due to altitude, vicinity of Arabian Sea and forest cover. General wheather conditions showing the mean, maximum and minimum temperatures and relative humidity in the months of May, July, November and January are tabulated below :

Months	Season	Mean Max.Temp.	Mean Min.Temp.	Relative Humidity.
May	Summer	37.22° C	21.11° C	20-50 %
July	Monsoon	25.55° C	22.22° C	90-100 %
November	Autumn	26.66° C	12.22° C	60-80 %
January	Winter	21.66° C	16.11° C	20-40 %

Rain fall : Within a very short period of only three months from Mid-June to mid-September, South West Monsoon brings almost the entire annual rainfall, which is as high as 6350 mm (250"). Occasional precipitation of over 300 mm (12") within a day in July by forential incessent rains, accompanied by gusty roary winds are typical of the part. This heavy rainfall abruptly comes down to 250 cms (100") within a short distance of only 16 kms. (10 miles) towards the Eastern side.A few premonsoon showers with thunderstorms in April and May and October and November respectively, severe drought conditions prevail all over from December to March with dry North-Easterly winds sweeping the whole area.

Light : Under the tree canopy of "Dangs", the intensity of light is considerably low. On the contrary, in completely exposed vast barren land around the patches of daceduous forest and sorubs in eastern part, light intensity is very high. Under the canopy of the trees, the humus riched-soil provides the intensive microflora which grow favourably in low intensity of light.

Biotic factors : Natural vegetation as such hardly seems to exist in the part, since much of the area has been brought under cultivation The area which is not technically under forest and grassland has been considerably destroyed due to indiscriminate cuttings, felling and grazing. Towards West, however, subtropical virgin forests, "Dangs" have remained so far uninjured.

The fungi listed here have been arranged alphabetically of the individual classes as follows :

Statistical summary of the different groups of fungi collected : A

Class	No.of genera	No.of species	Total No. of Hosts.	New Hosts Records
1. Myxomycetes.	6	6	6	-
2. Phycomycetes	2	9	10	3
3. Ascomycetes	50	138	244	113
4. Basidiomycetes	48	77	57	6
5. Deuteromycetes	56	147	235	109
Total	164	377	553	231

Statistical summary of the different groups of fungi collected : B

Class	New species	New Records to India	New Records to Maharashtra.	New Hosts Record	New generic Record to India.
1. Myxomycetes	-	-	1	-	-
2. Phycomycetes	-	2	-	3	-
3. Ascomycetes	26	41	17	113	3
4. Basidiomycetes	-	11	19	6	-
5. Deuteromycetes	14	18	28	112	-
Total	40	72	63	234	3

Abbreviations :

Sp. nov. - New Species, N.I. - New to India, N.S. - New to State N.H. - New Host.

Class - Myxomycetes

Arcyria ferruginea Sauter on unidentified wood.

Diderma sp. on unidentified wood.

Dictydiaethalium plumbeum (Schum.) Rostaf. (N.S. on dead branched of Allophyllus cobbe Bl.(N.H.) and Vangueia spinosa Roxb. (N.H.)

Hemitrichia serpula (Scop.) Rostaf. on unidentified wood.

Lamproderma scintillans (Berk. & Br.) Morg. on undetermined host.

Stemonites fusca Roth. on different woods.

Class - Phycomycetes

Albugo bliti (Biv.) Kuntz. on the leaves of Achyranthes aspera Linn.

Synchytrium ajrekari Payak & Thirum. on stems, petioles and leaves of phaseolus sublobatus Roxb. (N.H.).

S. biophytum Mishra on Biophytum sensitivum DC.

S. impatientis Cooke (N.I.) on Impatiens inconspicua Benth. (N.H.).

S. lepidagathidis Mundk. & Mhatre. on Justicia simplex DC. & Lepidagathis sp.

S. macrosporum Karling (N.I) on Begonia crenata Dyand.(N.H.)

S. pogostemonis Patil & Mahabale on Pogostemon parviflorus Benth.

S. rytzi Syd. on Leucas cilliata Benth.

S. senecionis Patil & Mahabale on Senecio grahami Hk.

Class - Ascomycetes

Acanthostigma heterochaete Syd. & Butl. on the leaves of Dumasia villosa DC.

Amphisphaeria carissiae Tilak on the leaves of Carissa carendas Linn.

Asteridiella polygoni Hansf. (N.I.)on the leaves of Polygonum chinense L.

C. fusisporum Fras. on the leaves of Elaegnus Kologa Schl.

Chaetothyrium sp. on the leaves of Carissa carendas L.

Cladonia verticilliata on the dead branches of Erythrina indica L.

Daldania concetrica (Bolt.ex Fr.) Ces. and de Not. on the dead branches and stems of Carissa carendas L., Desmodium triquetrum DC., Lasiosiphon eriocephalus Dene., Solanum indicum L. & Terminalia paniculata Roth. These are all new hosts.

Dasyscypha barbatus (Kunze) Massee (N.I.) on dead woods of Wendlandia notoniana Wall., Vangueria spinosa Roxb. and Xeromphis spinosa Keac. All these are new hosts.

Diatrype acaciae Tilak on the dead branches of Acacia pennata Benth.(N.S

D. azadirechae Cooke (N.I.) on the dead branches of Azadirech indica Jus

D. carissiae Tendulkar on the dead branches of Carissa carendas L.

D. engeniae sp. nov. on the dead branches of Engenia sp.

D. infuscans Ell. et Ev. (N.I.) on dead branches of Smilax macrophylla L (N.H.)

D. loranthi Tendulkar on dead branches of Loranthus sp.

D. psidi sp. nov. on dead branches of Psidium guyva L.

D. salmaliae Tilak on dead branches of Salmalia malabarica (DC.)Schott.

D. sapindina sp. nov. on dead branches of Sapindus laurifolius Vahl.

D. viticis Tendulkar on dead branches of Vitex negundo L.

Diatrype sp. on the dead branches of Bougainvillea spectabilis Willd., Bridelia stipularis Bl., B. retusa, Bixa orellana L. Butea monosperma (Lam.)Kuntze., Clerodendron inermes Gaertn., Diospyros sp., Embellia viridiflorus Scheff., Euphorbia pulcherrhima Willd.,Glochidion hohenackeri Bedd., Grewia asiatica L.,G.tiliaefolia

L. mabae sp. nov. on leaves of Maba nigrescens Dalz.

L. saccopetali sp. nov. on leaves of Saccopetalum tomentosum H.F.& K.

Leptosphaeria purpurea Rehm. (N.I.) on dead branches of Ficus glomerata L., Vangueria spinosa L. & Xeromphis spinosa keac. All new hosts.

Leptosphaeria sp. on the leaves of Memecylon edule Roxb.

Meliola allophylli Doidge (N.I.) on the leaves of Allophyllus cobbe Bl.

M. alstoniae sp. nov. on the leaves of Alstonia scholaris Br.

M. argyreiae sp. nov. on the leaves of Argyreia hookeri Clke.

M. bakari Syd. (N.S.) on the leaves of Leea sambucina Willd.

M. bicornis Wint. (N.I.) on the leaves of Desmodium triquetrum DC.

M. bruguierae Syd. (N.I.) on the leaves of Carallia integerrima DC.

M. buteae kafiz, Azqmutullah & Kafi (N.I.) on the leaves of Butea monosperma (Lam.) Kuntz.

M. brideliae Stev. & Rold (N.I.) on the leaves of Bridelia tomentosa

M. cadjensis Yates (N.S.) on the leaves of Glycosmis pentaphylla Corr.

M. callicarpiae Syd. (N.I.) on the leaves of Callicarpa lanata L.

M. canthi Hansf. on the leaves of Wendlandia notoniana Wall.

M. capitata sp. nov. on the leaves of Gnetum ula.

M. carissiae Doidge on the leaves of Carissa carendas L.

M. coereopsidis sp. nov. on the leaves of Coereopsis auristosa

M. connaricola Hansf. (N.I.) on the leaves of Connarus monocarpus L. (N.H.).

M. diospyricola Hansf. (N.I.) on the leaves of Diospyros montana Roxb.

M. entadae Hansf. (N.I.) on the pods of Entada scandens Benth.

M. glochidiicola Yamen (N.I.) on the leaves of Glochidion hohenackeri Bedd.

Nectria sp. on dead branches of Acacia pennata Willd., Poinsia regia, Strobilanthes sp. & Vangueria spinosa Roxb.

Orbilia sarraziniana Boudier (N.I.) on dead branches of Leea sambucina Willd.

Ostropa indica Kale and Tilak on dead wood of Lantana camara L.(N.H.)

Ostropa sp. on dead branches of Buddlei asiatica Lour.(N.H.)

Parodiella paraguinensis Speg. on the leaves of Crotolaria vestila Bark.

P. perisporioides (Berk. & Curt.) Speg. on the leaves of Alysicarpus longifolius W. & A., Desmodium triflorum DC.

P. indica Tilak on the leaves of Heylandia latibrosa DC.

P. smithiae Uppal, Patel & Bhide on Smithia bigemina Dalz.

Penicillium sp. on the fallen fruits of Terminalia chebula Retz.

Phyllachora aliena Syd. on the leaves of Memecylon edule Roxb.

P. dalbergiae Niessl. on the leaves of Dalbergia sympathetica Nimmu.

P. dendrocalami Aute & Kulkarni on the leaves of Dendrocalamus strictus Nees.

P. ectophytica Tilak on the leaves of Maesa indica Wall.

P. graminis (Pers. & Fr.) Fuck. on the leaves of Digitaria sp.

P. spissa Syd & Butl. on the leaves of Dalbergia sissoo Roxb.

P. symploci Pat. on the leaves of Symplocos beddomei Clarke.

P. repens (Cord.) Sacc. on the leaves of Ficus religiosa L.

P. mahabaleshwarensis Ananthn. on Embelia viridiflorus Scott.

P. leciola Ananthn. on Leea cripsa L.

Phyllachora sp. on the leaves of Hoya pendula Wt.

Phyllactinia corylea (Pers.) Karst. on the leaves of Cassia fistula L., Careya arborea Roxb. and Terminalia chebula Retz.

P. subspiralis (Solm.) Blumer on Dalbergia volubilis Roxb.

Pilgeriella lygodiicola sp. nov. on the leaves of Lygodium flexuosum Be

Xylosphaera sp. on the dead branchesof Salmalia malabarica(DC.)Scott.

Ustulina tessulata (Berk.)Cooke on the dead and rotten wood.

Valsa ceratophora Tul.(N.S.) on dead twigs of Morns alba L.(N.H.).

Class - Basidiomycetes

Aecidium melaleucum Syd. (N.S.) on the leaves of Maba nigrescens Dalz. (N.H.).

A. paramignyae Racib. (N.S.) on the leaves of Paramiguya monophylla Wt.

A. randiae P. Henn. on the leaves of Xeromphis spinosa keac.

A. vangueriae Cooke on the leaves of Vangueria spinosa Roxb.

Agrocybe broadwayi (Murr.) Dennis (N.I.) on soil.

Arthuria glochidionis Gokhale, Patel & Thirum. on leaves of Glochidion hohenackeri Bedd.

Auricularia mesentrica (Das.) Fr. (N.I.) on dead branches of Tectona grandis L.

Cantherellus sp. on wood.

Cerotellium fici (Butl.) Arth. on the leaves of Ficus heterophylla (N.H.) (uredinial-stage).

C. wagateae Thirum. & Gopalk. on the leaves of Wagatea spicata Dalz. (Telial-stage).

Chaconia butleri (Syd.) Mains. on Jasminum malabaricum Wight.

C. tectonae Ramkr. on the leaves of Tectona grandis L.

Claudopus variabilis (Pers.) Smith (N.I.) on dead branches of several plants. (Brick-Red-sporophores).

Clavilunopsis corniculata (Fr.) Corner (N.S.) on the soil under shade.

C. dicotoma (God.) Corner (N.S.). -,,-

Collybia fugipes Buller (N.I.) -,,-

Coprinus micaceus (Bull.) Fr. on the soil under shade.

Cyphella sulphurea Fries (N.I.) on the wood.

Cyathus limbatus Tul. (N.S.) on the soil.

Daedalia suberosa Massee on dead wood stumps.

Dasturiella divina Mundk. & Kheshwal on the leaves of Dendrocalamus-strictus Nees.

Fomes senex Nees. & Mont. on several woods.

Ganoderma lucidum (Leysey & Fr.) Karsten on dead woods.

Georgefischeria narsimhania Patil & Gandhe on the leaves of Argyreia hookeri Clarke.

Geatrum triplex Junghuhn. (N.S.) on soil.

Geopucoinia pulneyensis Ramkr. (N.S.) on the leaves of Toddalia aculeata Pers.

Hemileia holarrhenae Syd. on the leaves of Holarrhena antidysenterica Wall.

H. mysorensis Thirum. & Gopalkr. (N.S.) on the leaves of Gymnema montanum Hooke.

H. woodii Kal. & Cooke on the leaves of Vangueria spinosa Roxb.

Hemileia sp. on the leaves of Tabernaemontana heyneana Wall.

Hexagonia discopoda Pat. & H gr. on rotten woods.

Hymenochaete cacao Berk. on rotten woods.

Kamatomyces narasimhani (Thirum.) Sathe on leaves of Fluggea leucopyros

Kuehneola flacourtiae (Mundk. & Thirm.) Thirum. on leaves of Flacourtia indica Merr.

Kulkerniella pavettae Gokhale & Patel on the leaves of Pavetta indica Linn.

Lepiota rachodes (Vitt.) Quell. (N.S.) on the ground.

Lycoperdon perlatum Pers. (N.S.) on the soil.

Ravenalia emblicae Syd. on the leaves of Phyllanthus emblica L.

R. hobsonii Cooke on the leaves of Pongamia pinnata Merr.

R. kirganeliae Mundk. & Thirum. on the leaves of Phyllanthus reticulatus Poir.

R. sessilis Berk. Mundk. & Thirum. on the leaves of Abrus precatorius L.

Ravenalia sp. on the leaflets of Acacia pennata Willd.

Stakmania formosana (Syd.) Sathe on the leaves of Glochidion hohenackeri Bedd.

Sphacelotheca iseilematis (Syd. & Butl.) Mundk. & Thirum. on Iseilema laxam Hacke.

Trematomyces mammiformis Heim. (N.S.) on the termites nests.

Tremella sp. on the dead branches of different woods.

Trochodium sampathens. Thirum. on the leaves of Argyreia elliptica Chois

Uredo chasali Petch. (N.S.) on the leaves of Chasalia curviflora Thw.

U. malabarica Ramkr., T.S.& K. on the leaves of Bridelia retusa Spreng.

U. sissoo Syd. & Bult. on the leaves of Dalbergia sissoo Roxb.

U. terminalae P. Henn. on the leaves of Terminalia chebula Retz.

Uredinopsis macrosperma (Cooke) Magnus on the leaves of Pteridium aquilinum (L.) Kuhn.

Uredopeltis grewiae (Cummins) Sathe on the leaves of Grewia asiaticus L.

Uromyces appendiculatus (Pers.) Unger. on the leaves of Phaseolus sp.

U. commelinae Cooke on the leaves of Commelina sp.

U. mucunae Rabens on the leaves of Stizolobium deerangianum Bort.

U. orientalis Syd. on the leaves of Indigofera trita Linn.(N.H.)

U. hobsonii Vize. on the leaves of Jasminum malabaricum Wt.

Ustilago scitaminia Syd. var. sacchari-officiniarum Mundk. on Saccharum-officinianum L.

U. iseilematis Syd. & Butl. on Iseilema laxam Hack.

P. eugeniae Thuem. on the leaves of Engenia jambolana Lam.

P. embeliae sp. nov. on the leaves of Embelia viridiflorus Schoff.,

P. mangalorica Thuem on the leaves of Bridelia retusa Spreng.

P. mangiferae P. Henn. on the leaves of Mangifera indica L.

P. pinnarum Butler on the leaves of Phoenix sylvestris Roxb.

P. planimi Vize (N.I.) on the leaves of Glochidion hohenackeri Bedd.

P. ficicola Rao. on the leaves of Ficus tsiela Roxb. (N.H.).

Pestalotia theae Sawade var. minor Stey on the leaves of Butea monosperma (Lam.) Kuntz.

Phoma sp. on the stem of Careya arborea Roxb.

Phyllosticta artocarpina (Syd. & Butl.) Syd. on the leaves of Artocarpus integiifolia L.

Phyllosticta bambusina Speg. on the leaves of Bambusa sp.

P. buteae Syd. on the leaves of Butea monosperma (Lam.) Kuntz.

P. carissae kalehbr. & Cooke on the leaves of Carissa carendas L.

P. Clerodendroni Syd. & Bult. on the leaves of Clerodendron infortunatum L.

P. Clematidis Ell. & Dearn. on the leaves of Clematis sp.

P. cocos Cooke on the leaves of Cocos nucifera L.

P. combreticola P. Henn. on the leaves of Combretum ovalifolium Roxb.

P. ficicola Pat. on the leaves of Ficus tsiela Roxb.

P. flacourtiae Chipalonkar on the leaves of Flacourtia indica Merr.

P. gymnosporiicola Vasant Rao on the leaves of Gymnosporiamontana Benth.

P. hibiscina Ell. & Ev. on the leaves of Hibiscus surattensis L.

P. impatiens Siemaszko on the leaves of Impatiens inconspicua Benth.

P. lohagadensis V. Rao on the leaves of Bridetia retusa Spreng.

P. mahabaleshwarensis V. Rao on the leaves of Embelia viridiflorus Schoff.

religiosa L. Justicia simplex Don., Lantana camara L., Leea sambusina Willd., Madhuca indica Roxb., Lagerstromia parviflora Roxb., phaseolus sp., Senecio grahamii Hk., Solanum indicum L. Tectona grandis L. Vangueria spinosa L. & Vitex negundo L. These are all new hosts.

Sacidium depezeoides Cooke (N.S.) on the leaves of Aspidopteryx cordata Juss. and Olea dioica Roxb. (N.H.).

Selenophoma terminalae Thite (N. species) on Terminalia chebula Retz.

Stigmina maculata (Cooke) Hughes on the leaves of Ficus bengalensis L.

S. dendrocalamae sp. nov. on the leaves of Dendrocalamus strictus L.

Sirodesmium deshpandei Sheshadri on the leaves of Olea dioica Roxb.

Septogloeum acaciae Syd. (N.S.) on the leaves of Acacia arabica Willd.

Sphaceloma fici Thirum. (N.S.) on the leaves of Ficus glomerata L.

Stilbum erythrocephallum Ditm. on dead branches of varied plants

Ustilaginoidea oryzae (Pat.) Brefeld (N.S.) on the Oryza sativa L.

Zygosporium echinosporum Buting & Mason (N.S.) on the rotten leaves of Careya arborea Roxb. & Olea dioica Roxb. Both are new hosts.

Z. masonii Hughes on the rotten leaves of Rhizophora mucronata Lam. (N.H.)

Z. oescheoides Mont. on the rotten leaves of Canthium umbellatum Wight., Cinnamomum vernum J.S. Presl., Fourcroya gigantea Vent., Lagerstromia parviflora Roxb., Mangifera indica L., Passiflora edulis Sim. Polyalthia longifolia Bth & HK. f.