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Preliminary Checklist of fungal flora of Kas lateritic plateau and surroundings from the North Western Ghats of Maharashtra State

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ABSTRACT

Kas area as a part of the "Sahydri Sub-cluster" has been declared as the World Natural Heritage Site list of the UNESCO-IUCN. Considering this it is essential to document the existing diversity of various life forms of this area. The present checklist of fungal flora of Kas is an attempt to unravel the unexplored and hidden fungal wealth. Kas is the high level ferricrete surrounded by dense stunted semi-evergreen forests which harbors myriad fungal diversity. The checklist gives the preliminary count of fungal diversity from Kas and surrounding areas. An intensive search of literature records is reported which shows 53 species of fungi and lichens belongs to 23 families and 31 genera. The present checklist of fungi from Kas and surrounding is a value addition in the floristic study of the world natural heritage sites.

Introduction

The Western Ghats of Maharashtra, locally known as Sahyadri lie roughly between 15° 60' and 20° 75' N and between 72° 60' and 74° 40' E, covering about 52,000 km² area from Daman to Terekhol creek. The hills vary in height from 20 m to 2,000 m. As part of the Deccan Plate, this region has Gondwanaland origins. The Sahyadri sub-cluster includes the middle and upper elevation biomes of the northern Western Ghats, contain geologically and biologically unique formations. The windward western slopes of the region receive more than 2,500 mm of rainfall annually, particularly during South-West monsoon (June-September). Three large rivers, the Godavari, Koyna and Krishna carry the rainfall from the monsoon rains eastward into the drier Deccan Plateau. The mountain range ascends abruptly on the Western side from near sea level to the crest line and descends more gradually to 500 m on the Deccan plateau. (Figure 2)

The deeply dissected terrain produces localized variations in rainfall and habitat types and creates Hotspots of endemism by limiting species distribution. The presence of numerous barren rocky lateritic plateaus locally called sadas is the unique feature of the Sahyadri. These plateaus possess very characteristic herbaceous ephemeral vegetation. The Kas plateau is one of the important sadas located in Satara district, at an elevation of around 1,213 m. The rainfall received is between 2,000 and 2,500 mm annually. Of the total area of 1,792 hectares under the Kas plateau, 1,142 hectares is recorded as Government Forest.

To the West and South of the Kas plateau, lies the Koyna Wildlife Sanctuary spanning an altitudinal range of 600 m to 1, 100 m. The rivers Koyna, Kandati and Solashi, originating in the Western Ghats, span the sanctuary. It forms and protects the catchment of river Koyna and the reservoir Shiv Sagar formed by the dam on it. To the South lies, Chandoli National Park (earlier a Wildlife Sanctuary declared in 1985) located at the junction area of four districts, Sangli, Kolhapur, Satara and Ratnagiri of Western Maharashtra.(Figure 1) It spreads along the crest of the Sahyadri Range of the Western Ghats and lies between Koyna and Radhanagari Sanctuary. It forms and protects many perennial water channels, water holes and the Vasant Sagar reservoir. The altitude of national park ranges from 589 m to 1,044 m. The work of Kas fungi has been done in scarcity and patches, so the present compilation gives about the glimpses of fungal diversity at Kas plateu and the surrounding region.

This is the first effort towards the floristic analysis of the rich fungal biota at Kas and surrounding. The checklist gives the preliminary count of fungal diversity from Kas and surrounding areas. An intensive search of literature record shows 51 species of fungi and lichens belongs to 22 families and 30 genera.(Table 1) In this study the Basidiomycetous species are more studied than the remaining groups. During the field observations one thing has been noticed that the area is very much diverse in the members of Agaricales, Aphyllophorales and the Ascomycetous fungi which need to be studied.

The diversity of the species and genera itself shows the richness of the mycobiota at the world heritage site place which is need to be further explored for various groups of aquatic, terrestrial as well as lichenized fungi in detail. The graphical representation gives an idea about the fungal flora studied diversity.(Fig.2) At present the floristic study may help in conserving the rich fungal biota which changes season wise as the angiospermic flora changes.

Table 1. Various groups of fungi from Kas and surrounding area

Group of Fungi	Total reported Species	Total reported genera	% of Species
Mastigomycetes & Zygomycetes	03	03	05.66%
Ascomycetes	06	06	11.32%
Basidiomycetes	36	16	67.92%
Lichens	8	06	15.09%
Total Count	**53**	**31**	

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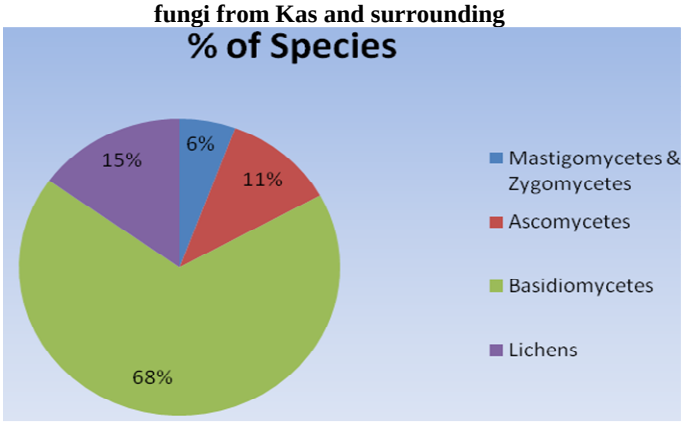
Figure 1. Map of Satara district

Figure 2. Graphical representation of various groups of fungi from Kas and surrounding



Checklist of fungi from Kas Plateu and surrounding:

Mastigomycotina & Zygomycotina

Plasmopara satarense P.B. Chavan & U.V. Kulk. 1971, (Peronosporaceae)
On *Triumfetta rhomboidea*
Satara and Kas
Rhizopus nodosus Namysl., 1906 (Rhizopodaceae)
On Sago
Satara and Kas
Synchytrium zorniae Lingappa, 1956 (Synchytriaceae)
On *Zornia gibbosa*
Satara and Kas

Ascomycotina

Ascobolus crenulatus P. Karst. , 1868 (Ascobolaceae)
On bird dropping
Satara and Kas
Ascodesmis macrospora W. Obrist, 1961 (Ascodesmidaceae)
On Lion dung, rodent dung
Satara and Kas
Lecideopsella gelatinosa Hansf. ,1945,(Schizothyriaceae)
On *Memecylon umbellatum*
Satara and Kas
Leptophyma gelatinosum (Höhn.) Arx 1962, (Microstromataceae)
On living leaves of *Memecylon umbellatum*
Kas (Satara)
Phyllactinia lanneae P.B. Chavan & U.V. Kulk. 1975; Erysiphaceae
On *Lanaea coromandelina*
Satara and Kas
Xylaria filiformis (Alb. & Schwein.) Fr., 1849 (Xylariaceae)
On leaf litter
Satara and Kas

Basidiomycotina

Aecidium acanthospermi P.B. Chavan & Bakare, 1973 (Incertae sedis)
On *Acanthospermum hispidulum*
Satara and Kas
Aecidium chlorophyti-glauci P.B. Chavan, 1969 (Incertae sedis)
On *Chlorophytum glaucum*
Satara and Kas
Aecidium leeae M.A. Salam & Ramachar, 1955(Incertae sedis)
On *Cissus elongata*
Satara and Kas
Aecidium lepidagathidis-cristatae P.B. Chavan, 1969(Incertae sedis)
On *Lepidagathis cristata*
Satara and Kas
Aecidium lepidagathidis-cuspidatae P.B. Chavan, 1969 (Incertae sedis)
On *Lepidagathis cuspidata*
Satara and Kas
Aecidium leucadis-montanae P.B. Chavan, 1969 (Incertae sedis)
On *Leucas montana*
Satara and Kas
Aecidium satarense P.B. Chavan & S.K. Patil, 1974 (Incertae sedis)
On *Notonia grandiflora*
Satara and Kas
Aecidium tricholepidis P.B. Chavan & Bakare, 1973(Incertae sedis)
On *Tricholepis radicans*
Satara and Kas
Aecidium zorniae-gibbosa*e* P.B. Chavan, 1969(Incertae sedis)
On *Zornia gibbosa*
Satara and Kas
Agaricus arvensis Schaeff., 1774 (Agaricaceae);
On soil
Satara and Kas
Calvatia fragilis (Quél.) Morgan, 1890 (Agaricaceae)
On soil
Satara and Kas
Cantharellus violicolor Corner, 1966 (Cantharellaceae)
On soil
Satara and Kas
Haploravenelia hobsonii (Cooke) S. Ito, 1943(Raveneliaceae)
On *Pongamia pinnata*
Satara and Kas
Lycoperdon gemmatum Batsch, 1783 (Agaricaceae)
On soil
Satara and Kas
Microporus xanthopus (Fr.) Kuntze, 1898 (Polyporaceae)
On fallen stumps on soil
Satara and Kas
Olivea colebrookiana Thirum. & Yadav, 1956 (Chaconiaceae)

On *Colebrookia oppositifolia*
Satara and Kas
Pholiota destruens (Brond.) Gillet, 1876 (Strophariaceae)
On soil
Satara and Kas
Pleurotus dryinus (Pers.) P. Kumm., 1871, (Pleurotaceae)
On Wood
Satara and Kas
Pleurotus sapidus Sacc., 1887 (Pleurotaceae);
On wood
Satara and Kas
Pleurotus spathulatus (Pers.) Peck, 1887 (Pleurotaceae)
On wood
Satara and Kas
Puccinia lateritia Berk. & M.A. Curtis, 1854 (Pucciniaceae)
On *Borreria stricta*
Satara & Kas
Puccinia leonotidicola Henn., 1903 (Pucciniaceae)
On *Leonotis nepetaefoli*
Satara and Kas
Puccinia satarensis P.B. Chavan & Bakare, 1973 (Pucciniaceae)
On *Abutilon muticum*
Satara & Kas
Puccinia scirpi DC., 1805 (Pucciniaceae)
On *Scirpus articulatus*
Satara and Kas
Ravenelia coimbatorica T.S. Ramakr. & Sundaram, 1952 (Raveneliaceae)
On *Phyllanthus urinaria*
Satara & Kas
Ravenelia satarensis P.B. Chavan & U.V. Kulk., 1975 (Raveneliaceae)
On *Caesalpinia sepiaria*
Satara and Kas
Sphaerophragmium acaciae (Cooke) Magnus, 1891 (Raveneliaceae)
On *Albizzia lebbeck*
Satara and Kas
Tricholoma equestre (L.) P. Kumm., 1871 (Tricholomataceae)
On soil
Satara and Kas
Uredo arachidis Lagerh., 1895 (Incertae sedis)
On *Arachis hypogea*
Satara & Kas
Uromyces indigoferae Dietel & Holw., 1901 (Pucciniaceae)
On *Indigofera linifolia*
Satara & Kas
Uromyces mucunae Rabenh., 1878 (Pucciniaceae)
On *Mucuna hirsuta*
Satara and Kas
Uromyces phaseoli G. Winter, 1881 (Pucciniaceae)
On Vigna capensis
Kas (Satara)
Uromyces proëminens (DC.) Lév., 1847 (Pucciniaceae)
On *Euphorbia parviflora*
Satara and Kas
Uromyces pseudarthriae Cooke, 1882 (Pucciniaceae)
On *Pseudoarthria viscida*
Satara and Kas
Uromyces satarensis P.B. Chavan & Bakare, 1973 (Pucciniaceae)
On *Blainvillea latifolia*
Satara and Kas
Uromyces setariae-italicae Yoshino, 1906 (Pucciniaceae)
On *Setalica italica*
Satara and Kas

Lichens

Heterodermia boryi (Fée) Kr.P. Singh & S.R. Singh, 1976 (Physciaceae)
Commonly found over mosses, on basal portion of trees in moist places associated with *Leptogium*
On trees around Kas Lake
Heterodermia diademata (Taylor) D.D. Awasthi, 1973 (Physciaceae)
On tree trunk and branches, sheltered rocks with other members of Physciaceae
Kas Dam
Heterodermia podocarpa (Bél.) D.D. Awasthi, 1973 (Physciaceae)
On bark mainly on twigs
Kas Lake
Lecanora fimbriatula Stirt., 1879 (Lecanoraceae)
On *Eugenia* sp.
Kas Dam surrounding vegetation
Leptogium indicum D.D. Awasthi & Akhatar, 1979 (Collemataceae)
On bark of *Erythrina indica*
Near Satara, Kas Dam
Parmotrema tinctorum (Despr. ex Nyl.) Hale, 1974 (Parmeliaceae);
On trees, rocks and boulders in open moist places
Kas Lake
Phlyctis communis Chitale & Makhija, 2012 (Phlyctidaceae)
On road side trees
On the way to Kas Lake
Usnea ghattensis G. Awasthi, 1986 (Parmeliaceae)
On bark *Memecylon umbellatum*
Satara, Kas Lake

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