

A brief report of the common vegetal diversity in Dongarwadi Area, Maharashtra, India

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(Received 28 October, 2019; accepted 6 December, 2019)

ABSTRACT

The Western Ghats are aplenty with a rich biodiversity in terms of flora and fauna. Mulshi district is a part of this nature's bounty and has several villages within its precincts. The floristic diversity changes with every season to bring forth several species of ephemeral and perennial plants. Visits were organized at a specific time period in Dongarwadi area to investigate the botanical diversity. The recorded plants were further classified into fungi, bryophytes etc as per their groups. An added note on ecological characters as well as uses of each plant specimens signifies the importance of the plants in the area. A brief data of the most common species has been presented as a ready reckoner for further investigations.

Key words: Vegetal diversity, Dongarwadi

Introduction

The northern western ghat is a rich belt of floristic diversity at an altitude of about 700m near Pune. Mulshi (18°25'-18°41'N and 73°20'-73°35'E) is a district located in this place with a total area covering up to 250 km². The average rainfall is about 6500mm and the vegetation is moist deciduous type. This place is also rich in patches of evergreen forest, plains and many sacred grooves (Rani Bhagat *et al.*, 2016). The conspicuous feature is the Mulshi dam, which forms the semi circular Mulshi lake. Dongarwadi is a small village close to the backwaters of Mulshi lake. This is a scenic habitation rich in biodiversity, which harbors few tribal and non-tribal communities.

Every monsoon this area is aplenty with every type of botanical specimen. Vegetation being the most important part of ecosystem reveals the environmental effects as well as diverse faunal associations. Moreover most of these plants are important in the healing of various ailments (Pawar *et al.*,

2016). With changing environmental conditions; a checklist of the common plants of a area has taken precedence. It gives an idea about the association within as well as in between species. People want to get back to age-old remedies. Keeping this point in mind, the uses of the reported species has been briefly described.

The time period for this data collection was mainly in the rainy season, from the month of July to September. Naturalistic observations were carried out to record the plant species in assigned specific areas. Visits were organized around the same time for three consecutive years to validate the observed species of plants. Repeated visits to the area for repeated period of time resulted in our idea of documentation and categorization of data according to their plant groups. The plants were identified by use of several floras and authentic online database sites.

Our study has resulted in listing of about 50 common species from the area (table of specimens). The plants were categorized into fungi, bryophytes,

pteridophytes, gymnosperms and angiosperms (Plate). Ecological remarks and uses of each plant will help the reader in appreciating the significance of the common plants. The reproductive stages of the listed plants were documented for conservation aspects. This preliminary data could help researchers in investigating the phytochemical importance of these plants and aid in all other further explorations.

Results

The findings collaborate to a very small snapshot of the huge varied floristic diversity of the Dongarwadi. Ample investigations are required in the economic importance of the abundant cryptogamic specimens. Most of the parasitic fungi are economically important for production of extracellular enzymes which can be used in pulping and

Plate - Some selected specimens of the study area.

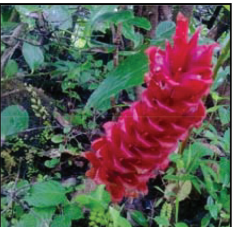
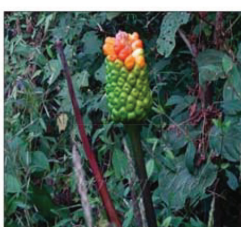
			
Daedaleopsis	Rigidoporus	Flavodon	Xylaria
			
Funaria	Gnetum	Chelanthus	Adiantum
			
Alpinia	Kaempferia	Phyllocephalum	Arisaema
			
Sopubia	Trichosanthus	Leea	Asystasia

Table 1. Detailed information of specimens observed in Dongarwadi

Sr. No.	Scientific name	Common/ vernacular name	Family	Ecological remark	Uses
FUNGI					
1.	<i>Amylostereum chailleti</i> Pers.	Amylostereum rot	Stereaceae	Crust like fungus on dead wood, establishes symbiosis with wood wasps	White rot in spruce species
2.	<i>Coprinellus disseminates</i> Pers	Fairys bonnets	Psathyrellaceae	Fruits in clusters near base of stumps with initially white pileus	Xylanase extracted, used in paper and pulp industry
3.	<i>Daedaleopsis quercina</i> (L) Pers	Blushing bracket	Polyporaceae	Large fruit body upto 20 cm commonly found on tree bark	Brown heart rot in trees
4.	<i>Flavodon flavus</i> Klotzsh	White rot fungi	Meruliaceae	Hymenophore yellow in colour, closely appressed to substratum.	Lignin degrading enzymes, used in biopulping
5.	<i>Ganoder malucidum</i> Curthis	Lingzi mushroom	Ganodermataceae	Shiny basidiocarp seen on decaying logs	Extracellular enzymes help in bioremediation
6.	<i>Hexagoniatenuis</i> Hook	Wood rot fungi	Polyporaceae	Thin leathery cap with hexagonal pores on underside which are white when young and dark on maturity	Enzymes used in degradation of synthetic dyes
7.	<i>Marasmius</i> spp.	Armillia root rot	Marasmiaceae	Small fruiting bodies in clusters	Anti cancerous, antimicrobial and phytotoxic properties
8.	<i>Microporus xanthopus</i> Fr	Yellow footed polypore	Polyporaceae	Grows on rotting wood and has a shiny funnel shaped pileus with wavy margin	Anti microbial activity against pathogenic strains
9.	<i>Polyporustric holoma</i> Mont	Poroid fungi	Polyporaceae	White stipe found on fallen stumps	Extract maybe used for urinary tract infections
10.	<i>Rigidoporusul marius</i> Sowerby	White root rot	Meripilaceae	Plant pathogen on broad leaved trees	Extract helps in regulation of anti inflammatory processes
11.	<i>Schizophyllum commune</i> Fries	Split gill	Schizophyllaceae	Pileus shell shaped with pale reddish gills.	Bioactive schizophyllananti tumorproperties
12.	<i>Xylaria hypoxylon</i> L	Candle stick fungus	Xylariaceae	Cylindrical 3-8 cm long ascocarps produced from saprophytic mycelia	Bioactive xylaroneantiviral, anti inflammatory properties.
BRYOPHYTES					
13.	<i>Anthoceros</i> spp.	Hornwort	Anthocerotaceae	Found in moist clayey soil along ditches, flat lands and damp hollows of rocks	Can be used as living agricultural fertilizer.

Table 1. Continued ...

Sr. No.	Scientific name	Common/ vernacular name	Family	Ecological remark	Uses
14.	<i>Funaria</i> spp.	Moss	Funariaceae	Grows in shady cool places on tree trunks	Used to cure hepatic disorder and skin disease
15.	<i>Riccia</i> spp.	Liverwort	Ricciaceae	Rosette thalli in moist areas	
PTERIDOPHYTES					
16.	<i>Adiantum</i> <i>lunulatum</i> (Burm)	Walking maiden hair fern	Adiantaceae	Grows in creeping or semi erect position on stream banks or rocks.	Fresh/dried fronds used as expectorant & laxative.
17.	<i>Asplenium caudatum</i> G.	Spleenworts	Aspleniaceae	Rock inhabiting fern which grows in individual clumps	Fronds are used as diuretics.
18.	<i>Cheilanthes</i> <i>farinosa</i> Forssk	Silver fern	Pteridaceae	Rock dwelling fern which grows in light shade in mixed deciduous forests	Root cures eczema and stomach ache
19.	<i>Lygodium</i> spp.	Climbing fern	Lygodiaceae	Rachis long, slender, flexible and twists around support	Plant cures hepatic congestion.
20.	<i>Selaginella</i> <i>ciliaris</i> Retz	Spike-moss	Selaginellaceae	Creeping micro-phyllous plant on moist grounds	Plant reduces high fever
GYMNOSPERM					
21.	<i>Gnetum</i> <i>ula</i> Brong	Umbli	Gnetaceae	Liana found on trees and is indicator of evergreen forest	Bark provides strong fibres for nets and ropes.
ANGIOSPERMS					
22.	<i>Alpinia</i> <i>allughas</i> Retz	Taraka	Zingiberaceae	Perennial herb with fragrant roots	Leaf has anti microbial activity
23.	<i>Argyreia</i> <i>nervosa</i> Burm F	Samudrasoka	Convolvulaceae	Vigorous vine with heart shaped big leaves	Leaf paste cures ringworm, eczema etc
24.	<i>Arisaema</i> <i>tortuosum</i> Wall	Sardachajad	Araceae	Plant grows in large clumps	Aged dried roots used for rheumatism and boils.
25.	<i>Ayastasi</i> <i>adalzelliana</i>	Neelkanth	Acanthaceae	Perennial branched herb with trumpet shaped flowers	Leaf extract used against rheumatoid arthritis
26.	<i>Celosia</i> <i>argentea</i> L	Kombda	Amaranthaceae	Small herb with papery flowers	Leaf and seed extract shows anti-diabetic properties
27.	<i>Colebrookea</i> <i>oppositifolia</i> SM	Bhaman	Lamiaceae	Branched stout shrubs common in hilly areas	Roots are used to cure epilepsy and urinary problems
28.	<i>Colocasia</i> <i>esculenta</i> Schot	Adu	Araceae	Common perennial herb in deciduous forests	Corms used as laxative and rubifacient
29.	<i>Cynoglossum zeylanicum</i> Vahl	Lichardi	Boraginaceae	Occasional annual herb found in evergreen forests	Dried powder has anti inflammatory properties

Table 1. Continued ...

Sr. No.	Scientific name	Common/ vernacular name	Family	Ecological remark	Uses
30.	<i>Eriocaulon heterolepis</i> Steud	Button head pipewort	Eriocaulaceae	Annual plant growing in temporary shallow pools at 600-1200m altitudes areas	
31.	<i>Euphorbiaan tiquorum</i> L	Tridharinivdung	Euphorbiaceae	Shrub with ribbed stout trunk on hill slopes	Latex used in treatment of asthma and rheumatism
32.	<i>Euphorbia laeta</i> Spreng	Dudhi	Euphorbiaceae	Perennial herb with milky juice	Fruit are laxative and anti inflammatory. Anti diabetic properties
33.	<i>Exacampumilum</i> Grieseb	Jambhlichirayat	Gentianaceae	Small erect herbaceous plant with quadrangular stem	
34.	<i>Impatiens balsamina</i> L	Terda	Balsaminaceae	Annual plant with soft stem and spirally arranged leaves	Juice from leaves used to treat warts and scorpion stings.
35.	<i>Ixorapavetta</i> Andr.	Raikada	Rubiaceae	Large evergreen tree with fragrant flowers	Bark decoction used to correct visceral obstructions
36..	<i>Kaempferia scaposa</i> Benth	Chohola	Zingiberaceae	Erect perennial herb which grows on moist hill slopes	Rhizomes used in reduction of gastropathy.
37.	<i>Leeasambucina</i> L	Dinda	Vitaceae	Large shrub with prominent stipules	Leaf juice mixed in coconut milk for dysentery
38.	<i>Memecylonum bellatum</i> Burm	Anjan	Melastomaceae	Small evergreen tree found at high elevations (pride of Matheran)	Roots are antipyretic and anti inflammatory
39.	<i>Murdaniaspirata</i> Brucck	Asiatic dew flower	Commelinaceae	Annual sub erect herb with rooting at lower nodes	Extract used against leukemia
40.	<i>Pavettacrassicaulis</i> Bremek	Papat	Rubiaceae	Erect branched shrub found in open forest areas	Bark and leaf decoction used against hemorrhoids
41.	<i>Phyllocephalum tenue</i> Clarke	Parnagumphi	Asteraceae	Occasional in grasslands and forests	
42.	<i>Pogostemondec canensis</i> Panigrahi	Jambhlimanjiri	Lamiaceae	Gregarious in shallow fresh water ditches	Essential oil has anti larvicidal properties
43.	<i>Pogostemon auricularis</i> L	Jambhlimanjiri	Lamiaceae	Occasional in evergreen forest hills	Plant has anti dandruff properties, used in hair oils.
44.	<i>Rotalaindica</i> Willd	Indian toothcup	Lythraceae	Common weed of rice field	Used in Aqua-scaping
45.	<i>Seneciosgrahamii</i> Hooke	Sonki	Asteraceae	Abundant monsoon herb on hill slopes	Anti larvicidal properties

Table 1. Continued ...

Sr. No.	Scientific name	Common/ vernacular name	Family	Ecological remark	Uses
46.	<i>Smithiapurpurea</i> Hook	Barka	Fabaceae	Small annual herb with oblong leaves with bristle at tip	Green manure crop
47.	<i>Sopubiadelphinifolia</i> G	Split leaf Sopubia	Scrophulariaceae	Root parasite common in moist grasslands	Juice has healing properties for sores.
48.	<i>Thunbergia fragrans</i> Hort	Chimine	Thunbergiaceae	Perennial twining climber	Leaf paste applied over wounds
49.	<i>Trichosanthes tricuspidata</i> Lour	Caundal	Cucurbitaceae	Vine with trailing branches found at elevation of 1200 to 2300 m	Fruits used in treatment of epilepsy and rheumatism
50.	<i>Wrightiatinctoria</i> Roxb	Kala kuda	Apocynaceae	Small deciduous tree with ivory colored smooth bark	Seeds, leaf, bark and root in piles, fever and skin diseases

paper industries (Padhiar *et al.*, 2010) Also most of the saprophytic fungal enzymes have potent immune modulating and anti cancer properties (Roumyana *et al.*, 2008). The bryophytes and pteridophytes have anti inflammatory properties (Mannar *et al.*, 2008). A considerable number of angiosperms have been investigated for their pharmacological properties (Meher *et al.*, 2011; Saiqa *et al.*, 2016) but further research in herbal drug designing is necessary. Some uses of common plant species of *Phyllocephalum*, *Eriocaulon*, *Smithia* have not been documented. Further investigations with regards to scientific processing for bio pharmaceuticals needs to be carried out.

Acknowledgement

This research has been funded by UG-CPE project of Fergusson College. The author is grateful to Dr. Ravindrasinh Pardeshi, Principal and S. S. Kate, Head, Botany department for their encouragement and support for this activity. The author is sincerely thankful to Ayesha P., Anuja K., Rahul P., Shubam P. and Vaishnav K. for their diligent assistance in field work and data presentation.

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