STUDY OF SOME PLANT FAMILLIES OF THE COLLEGE CAMPUS

PROJECT REPORT

Under

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Department of Biotechnology, New Delhi

By

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Certificate

This is to certify that the work incorporated in the project report on "STUDY OF SOME PLANT FAMILLIES OF THE COLLEGE CAMPUS" Miss. Ghule Vaishali Ajinath, Miss. Bankar Gauri Jalindar & Miss Aran Kanchan Daulat are students of Arts, Commerce and Science College Sonai, Tal.Newasa, Dist. Ahmednagar. Affiliated to the Savitribai PhulePuneUniversity Pune successfully completed project.

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Declaration

We hereby declare that the work done in this thesis entitled " STUDY OF SOME PLANT FAMILLIES OF THE COLLEGE CAMPUS " is submitted to Department of Botany, Arts, Commerce and Science College Sonai. This project is completed under the DBT Star College Scheme and the supervision of Mrs . Rawade V.N The works is original and not submitted in part or full by me or any other to this or any other University.

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INTRODUCTION:

Campus of Mula Education Society's Arts, Commerce and Science College Sonai is a Green Campus. It is a place where environmental friendly practices and education combine to promote sustainable and eco-friendly practices in the campus. The green campus concept offers an institution the opportunity to take the lead in Redefining its environmental culture and developing new paradigms by creating sustainable solutions to environmental, social and economic needs of the mankind

(1). The richness of flowering plants makes India one of the mega diversity countries in the world with four biodiversity hotspots and three mega centers of endemism. India ranked seventh among 17 mega diversity countries of the world and more than 17,000 species of higher plants are reported to India (3,4). Biodiversity keeps the ecological processes in a balanced state, which is necessary for human survival

(2). Botanical gardens of college campuses of the state are forest fragments of varying sizes, which are communally protected and which usually have a significant religious connotation for the protecting community. Harvesting of the plants is usually prohibited within the campus. All around the globe, different cultures have made use of plants that grew around them. The plant diversity at any site is influenced by species distribution and abundance patterns

(5).In the present study is designed with an objective to study the floristic diversity and documentation of campus flora.

Study Area :

Locality:

The college is located in Sonai, 5 km from Shani Shingnapur on the way to Rahuri in Newasa , Dist. Ahmednagar , Maharshtra state in India. The college is linked by buses.

Temperature

The atmospheric temperature data was computed and the mean maximum and the mean minimum temperatures were presented in the form of a graph. From the graph, it is seen that the hot months are April, May and June with the maximum temperature ranging from 35 to 36°C and the cool months being November, December and January with the minimum temperature ranging from 23 to 24°C. The atmospheric temperature was used for the calculation of the soil temperature by deducting 5°C. The temperature will give an idea about the soil moisture.

Soil:

Moisture regime is one that is limited but is present at a time when conditions are suitable for plant growth. The soil is dry in some or all parts for 90 or more days per year. Soil having well nutritive properties for plant growth.

Climate:

The climate of this district in the state of Maharashtra , India is termed as a fairly healthy for plant growths. . The month of November, December, January and February are the pleasant months in a year with climate full of warm days and cool nights. From the month of March onwards, the climate becomes sultry and the mercury reaches its peak by the end of May and June depending upon the set of summer rain.

Rainfall

In terms of number of days in quantity, continuity, intensity the rainfall from June to November .

Vegetation

The vegetation in the study area is tropical dry places. The dominant tree species include

Herbs include *Polycarpia corymbosa, Mimosa pudica, Cynodon dactylon, Tephrosia purpurea, Euphorbia hirta, Acalypha indica, Achyranthus aspera, Datura metel* etc

Mangifera indica, Polyalthia longifolia, Azadiracta indica, Tectona grandis, Cocas nucifera,

Guazuma ulmifolia, etc., shrubs include *Duranta erecta, Ixora Coccinia, Casia tora,* etc.,

PRIMARY OBJECTIVES OF SURVEY:

- To survey the plant resources of the ACS college campus.
- To identify, collect, which are economically beneficial to human beings.
- To undertake taxonomical study of Plants and label the trees with Botanical Name, Local Name, and their family.

MATERIAL AND METHODS:

The Families is study with the help of observation from the campus, either in the flowering or fruiting stage. Regular field visits were made during the year 2020-2021 in different seasons to explore the various plant species. All the studied plant species have been arranged alphabetically, along with their family, binomial and vernacular names. To facilitate easy reference regional names were also gathered for many of the taxa. The campus harbors both exotic and indigenous species. The families are arranged according to Bentham to Hooker's system of Classification(10).

OBSERVATIONS:

TABLES:

Table No. 1(**Angiosperms**)			
Sr. No.	**Botanical Name**	**Common Name**	**Family**
1.	*Abelmoschus tetraphylla*	Ranbhendi	Malvaceae
2.	*Abrus precatorius* Linn.	Gunj	Fabaceae
3.	*Acalypha indica* Linn.	Khokali	Euphorbiaceae
4.	*Achyranthes aspera* Linn.	Aghada	Amaranthaceae
5.	*Adhatoda vasica*	Adulsa	Acanthaceae
6.	*Aegle marmelos* Corr.	Bael	Rutaceae
7.	*Albizzia lebbeck* Benth.	Shirish	Mimosaceae
8.	*Alstonia scholaris*	Saptparni	Apocynaceae
9.	*Amaranthus spinous* Gmelin.	Tandulcha	Amaranthaceae
10.	*Anona squamosa* Linn.	Seetaphal	Annonaceae
11.	*Argemone Mexicana* Linn.	Bilayat	Papaveraceae
12.	*Argyreia nervosa* Sweet.	Samudrashok	Convolvulaceae
13.	*Aristolochia bracteolata* Retz.	Gindhan	Aristolochiaceae
14.	*Artocarpus heterophyllus*	Fanas	Moraceae
15.	*Azadirecta indica* A.Juss.	Kadu-Nimb	Meliaceae
16.	*Barleria prionitis* Linn.	Kate Koranti	Acanthaceae
17.	*Bauhinia Perpuria*	Kanchan	Caesalpinaceae
18.	*Benincasa hispida* (Thunb.) Cogn.	Kohala	Cucurbitaceae
19.	*Borassus flabelifer* Gmelin.	Bottle Palm	Palmaceae
20.	*Bryophyllum spp.*	Panfuti	Crassulaceae
21.	*Caesalpinia bonducella* Fleming.	Sagargota	Caesalpinaceae
22.	*Callistemon lanceolatus* (Sm.)	Bottle Brush	Myrtaceae
23.	*Calotropis gigantea* (Linn.)R.Br.	Mothi Rui	Asclepiadaceae
24.	*Capparis decidua* Retz.	Kiral	Capparaceae
25.	*Cassia auriculata* Linn.	Tarwad	Caesalpinaceae

26.	*Cassia fistula* Linn.	Bahava	Caesalpinaceae
27.	*Cassia javanica* Linn.	Pinkeshwar	Caesalpinaceae
28.	*Cassia siamea* Linn.	Kashid	Caesalpinaceae
29.	*Casuarina equisetifolia* Linn.	Suru	Casuarinaceae
30.	*Catharantus roseus* G.Don	Sadfuli	Apocynaceae
31.	*Ceasalpinea pulcherrima* (Linn.)Sw.	Shankasur	Caesalpinaceae
32.	*Celosia argentea* Linn.	Kurdu	Amaranthaceae
33.	*Chrysanthemum indicum* Linn.	Shevanti	Asteraceae
34.	*Citrus aruntifolia*	Limbu	Rutaceae
35.	*Cleome viscosa* Linn.	Pivli Tilwan	Capparaceae
36.	*Clitorea ternatea* Linn.	Gokarn	Fabaceae
37.	*Croton tiglium* Linn.	Jamalgota	Euphorbiaceae
38.	*Cuscuta reflexa* Roxb.	Amarvel	Cuscutaceae
39.	*Dalbergia sisoo* Linn.	Sisav	Mimosaceae
41.	*Delonix regia* (Bhoj.ex Hook)Raf.	Gulmohar	Caesalpinaceae
42.	*Duranta erecta* R.Br.	Golden Duranta	Verbenaceae
43.	*Echinops echinatus* Roxb.	Kate chedu	Asteraceae
44.	*Eclipta alba* Hassk.	Kala maka	Asteraceae
45.	*Emblica officinalis* Gaertn.	Amla	Phylanthaceae
46.	*Euphorbia hirta* Linn.	Dudhi	Euphorbiaceae
47.	*Euphorbia mili* (Rott.)Linn.	Lal-Dudhani	Euphorbiaceae
48.	*Euphorbia tirucauli* Linn.	Sher	Euphorbiaceae
49.	*Evolvus alsinoides* Linn	Shankhpushpi	Convolvulaceae
50.	*Ficus bengalonses* Linn.	Wad	Moraceae

Out of this some plant we are selected only four families plant for the study and this are show in following table

1.	*Adhatoda vasica*	Adulsa	Acanthaceae
2.	*Datura stramonium* Mill.	Safed Dhotara	Solanaceae
3.	*Cassia fistula* Linn.	Bahava	Caesalpinaceae
4.	*Casuarina equisetifolia* Linn.	Suru	Casuarinaceae

1) Adhathoda Vasica

Systematic position:

Division: Angiosperms

Class: Dicotyledonae Subclass: Gamopetalae ss

Series: Bicarpellatae

Order: Personnales

Family: Acanthaceae

Genus: Adhatoda

Species: vasica

Description:

Adhatoda vasica is a diminutive evergreen plant that grows in low availability of water. It is large shrub grows in crowded areas along waste land, road sides etc.

Its leaves are simple, acute, shiny, lanceolate and broader approx. 10−15 cm. in length and 4–6 cm. in width. It is minutely puberulous when it is young and after maturity it becomes glabrous.

It turns brownish-green when dried and contains bitter taste and its smell is similar to strong tea. Stem is soft and used to make charcoal for gun powder.

Flowers have bulky eye-catching white petals. Flowers are dense pedunculate spikes approx 3–8 cm. streaked with purple on the lower side, peduncles approx. 4–8 cm. shorter than the leaves, glabrous, 4–8 nerved, reticulate veination, and its fruit is a small capsule with four seeds. Flowering and fruiting occurs during August to December.

USES OF ADHATHODA VASACA

1. In ayurvedic Medicine, Adhatoda Vasica is used when patient coughing up yellow thick sputum and has a fever, wheezing or difficulty in coughing up the sputum. Then the following herbal combination is given.

2. The main action of this herb is observed on the respiratory system and circulatory system. Here are some clinical uses and health benefits of Adhatoda Vasica.

3. Adhatoda Vasica has anti-inflammatory characteristics. It helps in asthma and reduces inflammation of airways and lungs.

4. Adhatoda Vasica has antibacterial and antimicrobial properties. Therefore, it is helpful in a variety of bacterial infections of the respiratory system.

5. Adhatoda Vasica is helpful in a sore throat, throat pain and tonsillitis. It also reduces redness, pain, and inflammation of soft palate .

2. *Dhatura Stramonium*

Systematic position:

- Kingdom: Plantae
- Division: Magnoliophyta
- Class: Magnoliopsida
- Order: Solanales
- Family: Solanaceae (deadly Nightshade family)
- Genus: Datura
- Species: Datura stramonium

Discription:

Datura stramonium, known by the common names thorn apple, jimsonweed (jimson weed) or devil's snare, is a species of flowering plant in the nightshade family Solanaceae

Its likely origin was in Central America and it has been introduced in many world regions. It is an aggressive invasive weed in temperate climate across the world.

D. stramonium has frequently been employed in traditional medicine to treat a variety of ailments. It has also been used as a hollucinogen (of the anticholinergic antimuscarin , dilirant type), taken to cause intense vision .It is unlikely ever to become a major drug of abuse owing to effects upon both mind and body frequently perceived subjectively as highly

unpleasent, giving rise to a state of profound and long-lasting disorientation with a potentially fatal outcome.

Datura stramonium is an ill-smelling, erect, annual, freely branching herb.The root is long, thick, fibrous, and white. The stem is stout, erect, leafy, smooth, and pale yellow-green to reddish purple in color. The stem forks off repeatedly into branches and each fork forms a leaf and a single, erect flower. The leaves are about 8 to 20 cm (3–8 in) long, smooth, toothed, soft, and irregularly undulated. The upper surface of the leaves is a darker green, and the bottom is a light green. The leaves have a bitter and nauseating taste, which is imparted to extracts of the herb, and remains even after the leaves have been dried.

Datura stramonium generally flowers throughout the summer. The fragrant flowers have a pleasing oudor; are trumpet-shaped, white to creamy or violet long; and grow on short stems from either the axile of the leaves or the places where the branches fork. The calyx is long and tubular, swollen at the bottom, and sharply angled, surmounted by five sharp teeth. The corolla, which is folded and only partially open, is white, funnel-shaped, and has prominent ribs. The flowers open at night, emitting a pleasant fragrance, and are fed upon by nocturnal moths. The egg-shaped seed capsule is 3 to 8 cm (1–3 in) in diameter and either covered with spines or bald. At maturity, it splits into four chambers, each with dozens of small, black seeds.

USES OF DATURA

- The leaves of the datura are good to relieve headaches.
- The vapor of datura leaves infusion is used to relieve arthritis such as rheumatism and gout.
- The burning leaf smoke of datura is good to treat asthma and bronchitis.
- The ethanol extract from datura leaves is used as acaricidal, repellent, and oviposition deterrent properties against mites.
- The ethanol extract of datura is used as a repellent against larva and mosquito.
- The leaves of datura are used to treat heart problems like palpitations and hypertension.
- Datura leaves juice is used to treat earache.
- Boils can also be overcome by applying datura leaves as a poultice
- The juice of the datura plant is applied over the scalp to treat hair fall, hair loss, and dandruff.

3 . *Cassia fistula*

Systematic position

Common Name – Golden shower tree

Local Name – Amaltas

Other Names – Purging Cassia, Golden Chain Tree, Indian Laburnum

Botanical Name – *Cassia fistula*

Kingdom – Plantae

Division – Magnoliophyta

Class – Magnoliopsida

Order – Fabales

Family – Fabaceae

Genus – *Cassia*

Species – C. fistula L

Description:

Cassia fistula is a medium sized deciduous tree, with an oval to rounded shape, 5 to 15 meter in height and 5 to 10 meter wide. Cassia fistula tree is well known for its impressive yellow flowers that cover the entire canopy .The bark of the young tree is a grey, smooth to slightly ridged and slender, and changes to a darker grey-brown when mature. Stems or young twigs sparsely to densely hairy .The leaves are smooth, ovate shape, hairy below, alternate, pinnate, and deciduous, with 3-8 pairs of leaflets. The leaf can range from 15 – 60 cm long, with each leaflet ranging from 7 – 15 cm long, and 2-7 cm broad. The leaves will fall periodically, only to be replaced with new foliage. Leaves absent at flowering time. Leaves usually drop in April as a prelude to flowering which occurs from May to early July. The leaves on this tree are green year round, and remain green until they fall off and are replaced .The flowers appear mainly from March to July.

Flowers are bright yellow in color, and growing from pendulous 20 to 40 cm long racemes, each flower 4–7 cm in diameter with five yellow petals of equal size and shape .Fruit is legume, pendulous, cylindrical, and brown in color, 20 to 60 cm long, 1 to 2.5 cm broad, with a pungent odor and containing several seeds. Seeds lenticular, light brown, lustrous. Flower buds are green when immature, and mature into brown to purple-black pods .The pods contain approximately 30 -100 large hard flat, round seeds. Seeds lenticular, lustrous, and light brown in color

USES OF CASSIA FISTULA:

The ripe pods and seeds are widely used in both traditional and conventional medicine as a laxative. The root-bark, leaves and flowers also have laxative properties, but to a lesser extent. In modern medicine, the fruit pulp is sometimes used as a mild laxative in paediatrics. The fruit pulp and leaves are rich in anthraquinone derivatives (around 2%), and glycosides, which are responsible for the laxative properties. The fruit pulp is rich in pectins and mucilage.The pods are used as a remedy for malaria, blood poisoning, anthrax, diabetes and dysentery.

Suitable for use as a pioneer, the tree can be planted for the restoration of degraded lands and restoration of woodland. Since it is not palatable to domestic animals, it may be suitable for the reforestation of areas which have become overgrazed.

In-vivo tests have shown that the seed powder has amoebicidal and cysticidal properties against Entamoeba histolytica and that it could cure intestinal amoebiasis of humans. leaves are widely applied to skin problems.

A decoction of the roots is applied to purify wounds and ulcers. In India the roots are used to treat fevers.

It provides a hard multipurpose timber that can be used for buildings, carts, fence posts, agricultural implements etc .The wood is used to make a good quality charcoal.

The bark is used for tanning and dyeing. Leaves are useful in skin diseases, burning sensation, dry cough and fever. Fruits are used in flatulence, colic, dysentery, inflammations and intermittent fever. Flowers are useful in cardiac disorders, intermittent fever and general debility.*Cassia fistula* has many medicinal properties like are astringent, cooling, purgative, febrifuge, tonic, laxative, anthelmintic, emetic, antiperiodic, febrifuge, diuretic, depurative, carminative, anti-inflammatory, diuretic and ophthalmic.

4. *Casuarina equisetifolia*

Systematic Position:

Kingdom : Plantae

Clade : Tracheophytes

Clade: Angiosperms

Order : Fagales

Family : Casuarinaceae

Genus: Casuarina

Species : C.equisetifolia

Species : C.equisetifolia

Discription:

*C*asuarina is an evergreen growing to 6–35 m (20–115 ft) tall. The foliage consists of slender, much-branched green to grey-green twigs 0.5–1 mm (0.020–0.039 in) diameter, bearing minute scale leaves in whorls of 6–8. The flower are produced in small catkin like inflorescence ; the male flowers in simple spikes 0.7–4 cm (0.28–1.57 in) long, the female

flowers on short pesticides . Unlike most other species of *Casuarina* (which are diocieous) it is monocieous, with male and female flowers produced on the same tree. The fruit is an oval woody structure 10–24 mm (0.39–0.94 in) long and 9–13 mm (0.35–0.51 in) in diameter, superficially resembling a conifercone made up of numerous conifer cone each containing a single seed with a small wing 6–8 mm (0.24–0.31 in) long.

USES:

Casuarina was once used in the USA for reclaiming eroded areas, but many land managers condemn its use because it threatens indigenous plants and animals (Little & Skomen 1989, in Snyder 1992).

The wood is used for beams, boat building, electric poles, fences, furniture, mine props, oars, pavings, pilings, roofing shingles, tool handles, wagon wheels and yokes (Elfers 1988, Little & Skomen 1989, in Snyder 1992). Hill tribes of New Guinea use Casuarina in rotation to restore nitrogen to the soil.

The leaves have been employed in preparing active carbon by the zinc chloride method. Minor uses include wood ash for making soap and the extraction of dye from its bark (Elfers 1988).

Casuarina species have medicinal value; the astringent bark extract may be used as a remedy for diarrhea and dysentery and to help relieve a sore throat.seed

RESULT AND DISCUSSON:

In the present investigation An extensive plant survey was carried out in the Arts, Commerce and Science College, Sonai campus during 2020 -2021 . During the survey 50 plants were collected from Arts, Commerce and Science College, Sonai campus. Among them four plant have been studied . Most of the plants are belonging to angiosperms. Most of the family are dicot plant which are studied .

The study is done on the basis of the systematic position of plant ,morphology and their uses . In present investigation study the different plant shows different use in medicinal purpose .

CONCLUSION:

In terms of preserving the floral biodiversity, it is very important to set up a botanical garden in the confines of the campus and cultivate these plants, and protect the ones that grow naturally on the grounds. The study found that the plants recorded from the campus area are economically very important. Some of them are medicinal value; some are ornamental value and few are edible. Since in recent years the usage of plants for medicinal purpose is increasing, the knowledge of Ethno botany should be made available to all students and faculties. The documentation of plant is the only way to preserve the fundamental knowledge of the plant resources and it will be useful to the campus students and faculties for further research. Due to over exploitation and deforestation in the natural habitat, few of the presently reported plant species are endangered. Strict conservational measures are to be taken to protect these plants species from becoming rare or endangered .

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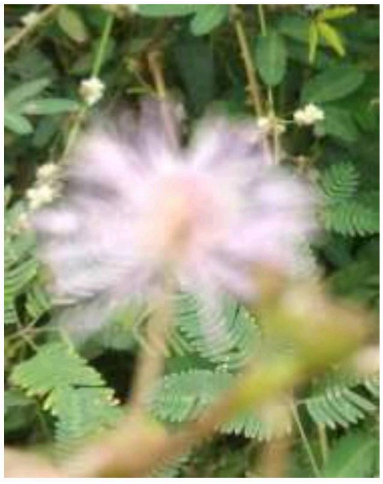
PLATE FIG-I

Lagerstromia parviflora R.Br.

Peltoforum pterocarpum

Delonix regia (Bhoj.ex Hook)Raf.

Chrysanthemum indicum Linn.



Mimosa pudica Linn.

Clitorea ternatea Linn.

Ceasalpinea pulcherrima (Linn.) Sw.

Hamelea patens Jacq.

Adhatoda vasica J.