Green Audit

(2021-22)

Green Audit Report

Anekant Education Society's Jaysingpur College,
Tal-Shirol, Dist-Kolhapur,
Maharashtra

Prepared by
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And
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2021-2022

Preface

World is facing various serious environmental issues, different reports from World Health Organization, IPCC, National and International organizations highlights the environmental issues are most sensitive and widely discussed issues in the world today. From local issues like unsafe drinking water, regional issues like urban smog to global warming to deforestation etc. are the environmental issues that are discussed at global level but true fact is that regional or local activities are responsible to make such issues global. On the background of scenario components involved in higher education institutions like universities, colleges, research institutes are expected to take lead role in environmental conservation and protection. Institutions must play an active role in creating and modeling solution for environmental problems.

Jaysingpur College, Jaysingpur is following different sustainable practices as their vision. As a part of Quality System, college is committed to take lead role and create its own identity in the protection and conservation of environment. College has been following eco-friendly and sustainable practices to manage the available resources. As a part of such voluntary practices and component of Quality System, internal environmental audit is conducted to evaluate the actual scenario on the campus.

Green auditing of college campus is planned systematic assessment of day to day activity with special reference conservation of natural resources, optimum use of available resource and control over waste generation. Green audit assessment will show way to find out the eco-friendly and non-eco-friendly practices on the campus. Objectives of green auditing vary with the operational activities of the organization. In case of our college green audit is a requirement of internal quality management system implemented by Anekant Education Society's Jaysingpur College, Jaysingpur, for the improvement in quality of higher education. Green audit show alternative path for management for non-ecofriendly activities. It also promotes a good environmental management practices and raises the awareness about the environmental conservation and its long-term benefits. College has already implemented conservation practices in vision, which provides chance to explore opportunities for better performance in the future.

As a part of Internal Quality System over the past five years college has fixed goal for conservation of environment and sustainable practices. For the achievement of goal, college accepted various new and advanced technologies which are eco-friendly; such as self-sufficiency in water by rain water harvesting bore well recharge, recycling systems etc. Plantation of local and endemic plant species on campus is big challenge that is accepted by the college. Over the years various green practices helped for number of significant changes, which have helped to increase the green area on the campus.

I am very happy to forward this Green Audit report of Jaysingpur College, Jaysingpur. I hope the report will be helpful to all concerned and will motivate all to change non sustainable practices.

JAYSINGPUR COLLEGE SR. COLLEGE JAYSINGPUR

Ag. Principal (Dr.) M.V. Kale
Jaysingpur College Jaysingpur

Analytical Services

(Consultants for Environment, Health and Safety)
Udhyog Adhar Reg. No. MH15D0001832

Ref: AAS/JCJ/GA/2021-22 Date: 15th April, 2022

TO WHOMEVER IT MAY CONSERN

This is declared that We, **ARCHANA ANALYTICAL SERVICES**, conducted Green Audit in academic year 2021-22 for the educational institution **JAYSINGPUR COLLEGE, JAYSINGPUR, Tal- Shirol, Dist- Kolhapur, 416101, Maharashtra, India.**

The Green Audit for JAYSINGPUR COLLEGE, JAYSINGPUR-416101 is conducted as per the norms and Guidelines of Ministry of Environment and Forest, Govt. of India and allied agencies, whereas applicable. Green Audit is replication of data given by institution and its actual onsite visit verification.

Archana Analytical Services Kolhapur

Signature of authority

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CONTENTS

INTRODUCTION

The foundation stone of Jaysingpur College, Jaysingpur was first established by Anekant Education Society in way back 1964, is starting with the Jain philosophical concept 'Siddhiranekantat' and with the blessings of Saint Late Samantbhadra Maharaj. Jaysingpur College, Jaysingpur becomes a ray of hope in rural area to get higher education. It was indeed laudable to think of providing higher education facility to rural students as there was a dearth of higher education within a radius of 40 kilometers. Thus, the segment of society which stood deprived of higher education till 1961 found a ray of bright future and hope from the academic point of view. In order to ascertain the aim of the establishment of the college, there is a need to have a look at the name of the society viz., 'Anekantwad' (multi-dimensionless) 'Siddhiranekantat' which finds a place in the motto of the college. The aim of education in this institution is to enrich the quality of matter i.e. the body matter of the individual so that the soul 'within' helps him to become a good 'Siddha' who will be an asset to the society. The college is affiliated to Shivaji University, Kolhapur. It attained its recognition from the University Grants Commission under 2f in March 1982 and 12 B, June 2007. The state government has granted 'Minority' status since August 2007 to till date Anekant Educational Society and its institutions. The college has received a grant of Rs. 99.5 lakh under DST-FIST scheme for College of Science and Technology, New Delhi.

At the advent of information and technology, the institution has kept a pace with active approach by setting-up a well-equipped computer labs and a resource center. teaching as well as non-teaching staff is well-versed in their practices.

1.1 Infrastructure

1) The college located at north side of Jaysingpur town approximately 1.0 km from central bus stand towards Shirol, they have their independent infrastructure plot of land measuring 25 acres of land.

2) The Master Plan of the College campus indicates 9 separate buildings. Totally, there are 25 classrooms,13Laboratories, 02 hostels, Including principles bungalow and administrative office. All the classrooms are equipped with standard furniture and fixtures.

- Library
- Classrooms
- Administartive office
- Computer lab
- Gymnasium

- Auditorium
- Conferance Hall
- Parking facility
- Conferance room
- Swimming pool

Sr.No	Facility	Carpet area (sq.ft)
1	Classrooms	20120
2	UG laboratories	6104
3	PG laboratories	1050
4	Research Lab	525
5	Computer Lab	2125
6	Library	4500
7	Administrative block	1980

8	**Seminar and reading room**	**4036**
9	**Green house**	**375**
10	**NSS.NCC, Gymkhana**	**900**
11	**Running track**	**400**
12	**Basket -ball court**	**5423**
13	**Cultural hall**	**2920**

1.2 Green audit an overview:

1) Educational Institutes are playing a key role in continues development of human resources worldwide through teaching and research. Educational institutes conduct various activities with aim to percolate the knowledge among the different levels of society. Likewise, educational institutes also try to give issues related environmental conservation and pollution control.

Education

2) Green audit can be a useful tool for a college to determine how and where they are using the most energy or water or resources; the college can then consider how to implement changes and make savings.

3) It can also be used to determine the type and volume of waste, which can be used for a recycling project or to improve waste minimization plan. Green auditing and the implementation of mitigation measures is a win-win situation for all the college, the learners and the planet. It can also create health consciousness and promote environmental awareness, values and ethics.

4) It provides staff and students better understanding of Green impact on campus. Green auditing promote financial savings through reduction of resource use. Thus, it is imperative that the college evaluate its own contributions toward a sustainable future.

As environmental sustainability is becoming an increasingly important issue for the nation, the role of higher educational institutions in relation to environmental sustainability is more prevalent.

1.3 Need of Green auditing:

1) Green auditing is the process of assessment of practices accepted by institution in view of whether they are ecofriendly and sustainable or not.

2) Traditionally, Indian culture teaches good and efficient users of natural resources. But over the period of time uncontrolled excess use of resources like energy, water, chemicals are become threat to the environment and society also.

3) Green audit shows all such practices and gives an well direction to optimizes the use of natural resource. In the era of global warning, climate change, pollution and resource depletion it is necessary to verify the accepted practices and convert it in to green and clean one.

4) Green audit provides an approach for it. It also increases overall awareness among the stack holders of institution towards an environmental conservation and green practices to be accepted.

1.4 Goals of Green audit:

- Measurement of carbon footprints by measuring and analyzing data filled by college.
- Involves inspection of activities done by college and its environmental impact in both positive and negative ways.
- The purpose of the audit is to identify, quantify, describe and prioritize framework of Environment Sustainability in compliance with the applicable regulations, policies and standards.

1.5 Objectives of Green audit:

1. To collect the base information over the current practices which can impact on environment.
2. Green audit is systematic approach.
3. Setup goal, vision and mission for environmental conservation and sustainable practices in campus.
4. Auditor ascertains the degree of correspondence between assertions and establishments criteria.
5. Goal or objectives of audit is communicating the result to interested users.

METHODOLOGY

This is the first attempt to conduct Green Audit of Jaysingpur College Jaysingpur. First target was to collect the base line data concern about the green practises. The present report is based on onsite visits, personal observations and questionnaires survey tools. Primarily, based on data requirement, different type of questionnaires was prepared. Questionnaires were provided to all concern asked them to fill the same. The generated data is subsequently gathered and used for further analysis. From the outcome of the overall study, a final report is prepared. Before the survey all the required secondary data were collected from college.

2.1Survey by Questionnaire:

Baseline data for green audit report preparation was collected by questionnaire survey method. Questionnaires were prepared based on the guidelines, rules, acts and formats prepared by Ministry of Environment and Forest, New Delhi, Central Pollution Control Board and other statutory organizations. Green audit report of Shivaji University, Kolhapur is used as format for the report preparation. Most of the guidelines and formats based on broad aspects and some of the issues or formats were not applicable for educational institutions. In fact questionnaires were prepared, using these guidelines and formats, combinations, modifications and restructuring them, sets of questionnaires were prepared as solid waste, energy, water, hazardous waste, and e-waste.

All the questionnaires comprise of group of modules. Questionnaires were prepared in such a view that it will be easy to extract the general information of the concerned college, which broadly includes name of the college, total number of students and employees, visitors of the college, average working days and office timings etc. Another part of the questionnaires extract the present consumption of resources like water, energy, or the handling of solid and hazardous waste. Maintaining records of the handling of solid and hazardous waste is much important in green audit. Last part of the questionnaires shows possibilities of loss of resources like water, energy due to improper maintains.

2.2 Onsite visit and observations:

Jaysingpur college, Jaysingpur campus has vast built up area comprising of various departments, administrative building, Library, Class rooms, staff quarters, student hostels, sports complex. All these amenities have different kind of infrastructure as per their requirement. All these buildings were visited by the surveyors. Presents conditions were checked by specific check list. Personal observations were made during the onsite visit.

2.3 Data analysis and final report preparation:

Required primary and secondary data were collected by different ways live questioners, check list etc. Collected data were crossed checked during the personal onsite visit. In case of green audit, the filled questionnaires of the survey from each group, were tabulated in excels spreadsheets. The tabulated data is then used for further analysis. SPSS software is used to find out the frequency distribution and results in percentile format. For better understanding of the results and to avoid complications, averages and percentages of the values from Tables were calculated. Interpretation of the overall outcomes are included in Final report

OVERVIEW OF GREEN AUDIT

Audit Criteria

3.1 Green Cover

To create- green cover, eco-friendly atmosphere, pure oxygen at the college campus, plantation program is organized every year with involving all students, principal, and all colleges faculty members. In this year various medicinal plant with rare and exotic beautiful trees was planted in botanical garden and other parts of college campus. To keep the greeneries in the campus, we regularly maintain the Moreover, every year we try to plant new trees College has developed a medicinal plant garden known as Nakshtra Garden with their own funds. One part of same garden specially devoted to medicinal plant. The college premises indicates the awareness level on floral biodiversity among the staff and students of the college. NSS and NCC receive funds from the Government whereas Nature Club are self-funded for this initiative.

Student volunteers from the College of Botany helps to count of trees and shrubs in the college premise. The college has maintained books on identification of flora and fauna. Volunteers from zoology college have maintained PANPOI for the birds in the campus; however, these efforts may be further improved by display of information. College students are also encouraged for bird watching within the campus. Records of such surveys on floral & faunal biodiversity are maintained and were available during the audit.

Zoology College conducts various activities through Salim Ali Nature club is continuously trying to highlight the issues concern about environmental conservation and protection. The babu house which is innovative idea conducted and implemented in college. Apart from this, nature club organizes time to time trips and nature treks to places of ecological importance for students who are interested.

List of Flora and fauna

With the help of College of Botany, a project on identification of plants in campus was undertaken and list of floral biodiversity is listed. Likewise, with the help of College of Zoology project on identification of fauna which includes, birds, reptiles etc. in campus was undertaken and list of faunal biodiversity is listed.

LIST OF PLANT SPECIES ALONG WITH FAMILY AND NUMBER OF INDIVIDUAL'S RECORDED

Sr. No.	Family	Botanical Name	No. of Individuals
1	Acanthaceae	*Ruellia* sps.	2
2		*Justicia adhatoda* L.	3
3		*Barleria cristata* L.	2
4		*Barleria involucrata* var. *elata* (Dalzell) C.B.Clarke	3
5		*Barleria prionitis* L.	2
6		*Crossandra infundibuliformis* (L.) Nees	2
7		*Andrographis paniculata* (Burm. A) Nees	1
8	Amaranthaceae	*Achyranthus aspara* L.	1
9	Amaryllidaceae	*Crinum* species	4
10	Anacardiaceae	*Anacardium occidentale* L.	1
11		*Mangifera indica* L.	2
12		*Mangifera indica* (Alphonso)	1
13		*Mangifera indica* (Amrapali)	1
14		*Mangifera indica* (Chandrama)	1
15		*Mangifera indica* (Dsheri)	1
16		*Mangifera indica* (Dudhpeda)	1
17		*Mangifera indica* (Fernandin)	1
18		*Mangifera indica* (Goa mankur)	1
19		*Mangifera indica* (Karel)	1
20		*Mangifera indica* (Keitt)	1
21		*Mangifera indica* (Kensington)	1
22		*Mangifera indica* (Kent)	1
23		*Mangifera indica* (Kesar)	1
24		*Mangifera indica* (Kingfon)	1
25		*Mangifera indica* (Kokanruchi)	1
26		*Mangifera indica* (Lily)	1

Cont…

Drip and sprinkler irrigation system

As a part of water conservation Technique College installed drip and sprinkler system for watering the plant.

Planation of Rare Species

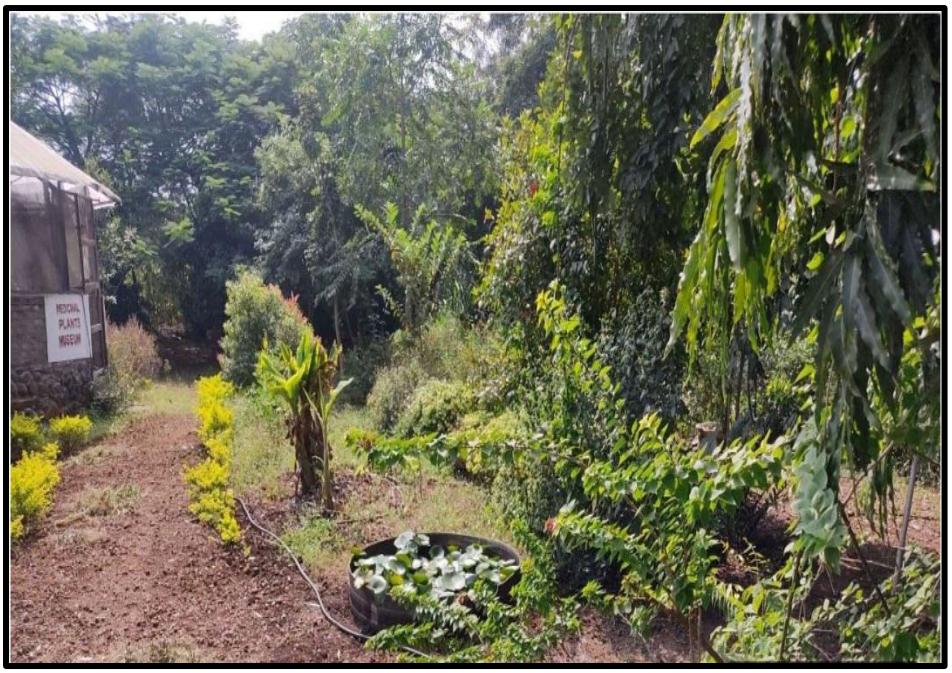
College has developed a rare endangered species garden situated at entry of college, and backside of biology college. Space has been allocated for developing a medicinal plant by and its plantation Infront of junior chemistry lab in college premises. The college premises indicate the awareness level on floral biodiversity among the staff and students of the college.

Plantation with villagers at different villages

College has started a unique movement of plantation, motivational approach were developed in local people for planting tree. As a part of this movement villagers from surrounding villages are sensitized to plant a tree in front of their house, in their farm to nourish environment with same.

Drinking water system for birds and animals

As a part of conservation of biodiversity college have make separate drinking water system for birds and animals. Specific water bowels are placed at typical location considering the less human interferes. This practise shows very good results and bird and animal count is increased because of availability of water and secure place.



3.2 Waste Management

Solid waste management is a burning issue in current days. The rate of generation of solid waste is very high, management technology are too adequate. Unscientific handling of solid waste is also a burning issue which can create threats to public health and environment. It is necessary to manage the solid waste properly to reduce the load on waste management system. The purpose of this audit is to find out current management practice of solid waste generation in the campus.

Paper waste is a major solid waste generated in the campus. Most of the colleges including office, library are major contributing in the paper waste generation. Followed by paper, dry leaf's is secondary contributing solid waste generated in large quantity in the campus. Office staff are using one side papers for printing and writing. Biodegradable waste generated in campus is mostly from canteen, hostels. Glass waste is less contributing but it takes part in solid waste generation. Glass waste generated from laboratory mainly in the form of bottles, many times bottles are reuse for storing of other chemicals. Other glass waste is thrown with solid waste. The college have well established protocol to recycling and reuse of resources such as paper in the form of annual sale of stored newspapers and waste papers to scrap dealer. Very few colleges are categorizing the plastic and sending it for recycling. Metal scraps and waste is segregated separately and sent for recycling yearly. Canteen waste is collected and some biodegradable waste is treated with vermicomposting process. It was observed that e-wastes were collected but due for disposal with recycler. Wastes such as electronic peripherals and paper wastes are stored and later collected by the peon.

Vermicomposting

As a part of solid waste management college installed vermicomposting plant. Vermicomposting plant is very useful for kitchen waste management. Kitchen waste is generally generated from hostel and canteen.

Compost pit

It is utilised for biodegradable waste (non-hazardous) management and its decomposition. The design of compost pit was researched and developed with help of students and teachers. The outcome of pit was reused and recycled in botanical garden of college itself. There is no any management or provision was seen for biological solid waste (for lab animals and sanitary pads)

3.3 Electricity and Energy Audit

Major energy sources utilized include Solar Energy, electricity and LPG. Major use of the energy is at office, hostel, laboratories, library canteen and class rooms for lighting, transportation, cooking and laboratory work. Electricity is supplied to the campus by Maharashtra State Electricity Board. There is no provision of generating electricity on site.

The IQAC Cell conducted an Energy Audit as a part of green audit Prime aim of audit was to find a way of energy conservation. College use solar energy as conventional energy source. Hostels are covered under use of solar energy. It is documented that Play cards and posters are displayed near electricity supply and rooms however it was now here to be seen during the walk through. The peon switched off all power supply in non-lecture hours and was confirmed during the site walk through visit. Lab In charge of all laboratories conveyed that electricity during nonworking hours are put to be off.

Different awareness programs were conducted for peons, staff and students. The college initiated to install LED bulbs in the college campus, the initiative could be strengthened with help of a action plan. The college targets to reduce electricity out of total electricity consumed in college as per the documents. This may be supported by maintaining proper relevant records and benchmarking the present consumption. To Solar power plant of 60 KW power is installed as per recommendations of 2018-19 green audit.

3.4 Water Conservation

For the purpose of water audit an on-site walk through survey and assessment was conducted to determine the efficiency of water use and to develop recommendations for improving water use efficiency. Overall agenda of conducting a water audit is to identify opportunities to make water use more efficient. Water audit includes tracking, assessing and validating all components of flow from distribution system in to the consumer's properties. On the other hand, water audit of a campus review direction and quantity of water used for

domestic, laboratory, drinking, gardening, sanitary and landscaping processes.

Drinking water are provided on assessable place in the campus. Drinking water is currently not being tested for the water parameters according to prescribed BIS standards for drinking water.

Toilets were checked for leakages and spillage. These toilets were checked at random and found to be maintained in leakages and spillage free. The drinking water purification plant (small scale) seen in college campus and in ladies' hostel. The one at girls hostel is not maintained well. The NSS and Nature club conducts water conservation drives inside the campus and also at public places.

College incited to reduce water consumption by raising awareness in students & staff members and having periodic check on leaks. There were no displays of signage or message for Good Practices in the College premises for Water Conservation. It is needed for the continuous highlight of the issue. The college incited to recycle and reuse the wash water of wash basin for gardening purposes as a future plan. The college also planning for the rain water harvesting system as a conservation practice.

Rain water harvesting details with harvesting capacity.

College has some primary arrangements of rain water harvesting but it is insufficient and need to developed and modified.

3.5 Health and Hygiene

The college incited to promotes Swachh Bharat Abhiyaan by maintaining cleanliness on campus. It is well concentrated on housekeep. Toilets were checked for hygiene, leakages and spillage. These toilets were checked at random and found to be maintained in hygienic condition also students were found to be satisfied with hygiene level. It is documented that Sweeper cleans the floor and toilets regularly. Swachh Bharat Abhiyaan are promoted by the NSS and NCC wing. For a good hygiene practices college run following activities.

Sanitary napkin wending machine.

College have ladies hostel with accommodation capacity 50 numbers. For the purpose of good hygiene practice sanitary napkin machine wending machine and its proper disposal is proposed

Campus as oxygen park

By covering maximum area under green cover i.e. under plantation college has been oxygen park for the human as well as birds and plants also. College campus works as an oxygen

park because campus it provides good, fresh and non-contaminated air. Considering the conditions local people enjoying the campus ride at morning and evening time.

Illumination and ventilation

College building is more specious all the class rooms and all other rooms are good ventilated. Natural illumination and ventilation is too good. There is no need of artificial ventilation and illumination.

3.6 Training and Awareness.

The college runs nature club which conducts street plays on various environmental issues. NSS and NCC wings actively participate to promote Swachh Bharat Abhiyaan, and awareness rally. Since it is a part of Anekant Education Society key aim of college is to percolate the

knowledge at the lower line of the society without any expectation. Now a days it is called as Corporates social responsibility but same is the vision of Anekant Education Society from their establishment and it is achieved locally via different educational institutions. By following ways college reaches to society or mass. By making Ganesh idols using soil under theme of ‘eco-friendly Ganesh’.

Plantation with college staff

College has started a unique movement of plantation and the motivational approach is developed in local peoples to plant more and more trees. As a part of this the college staff

From which the one who own farm from surrounding villages are motivated to plant a tree in front of their house and nourish the same. Basically, primary school of Anekant Education Society is involved in this activity.

Summary and Audit findings

- College takes efforts for solid waste management by various methods.
- Recycling and reuse practice is followed.
- Organic and biodegradable waste is composted via Vermicomposting.
- Use of LED lamps is minimum and is to be encouraged.
- Toilets and bathrooms are consuming more water particularly at hostels.
- Good watershed management program is implemented on campus.
- There should be well adequate water filtration and Water treatment plants system.
- E-waste segregation, handling and disposal should be done properly.
- Good housekeeping is maintained throughout the premises.
- Visual signage boards for generating awareness about conservation of water and electricity are not found to be displayed.
- Drinking water is currently not being tested for the water parameters according to prescribed BI standards.

Recommendations

Following are some of the key recommendation for improving campus environment.

- Vision Mission and Goal to be prepared with all the recommendations and current practice carried by institution.
- The college should develop internal procedures to ensure its compliances with environmental issues.
- Leakages and corrosion of pipes, overhead tanks be maintained timely and promptly.
- The college should improve its monitoring and reporting system for water usage, electricity consumption etc.
- The college should develop a segregation protocol for the segregation of different type of solid waste.
- To achieve the target of reduction in electricity and water consumption, there should be proper documented management programs to achieve the same.

Plant Diversity of Jaysingpur College, Jaysingpur

Anekant Education Society's

JAYSINGPUR COLLEGE JAYSINGPUR

Introduction

The biodiversity of an area is important to understand the diverse ecosystem and niche. The diversity is the variety and variability of organisms on the earth. It includes variations within and between species present in particular ecosystems. The diversity in plants brings enormous benefits to mankind from direct harvesting of plants for food, medicine, fuel, construction materials and other uses to aesthetic, cultural, recreational and research values.

The "flora" of any given region is usually explained in biological terms to include the genus and species of plant life, their preferred growing habits and their connection to one another in the environment as well.

The documentation of local flora means to make an organized collection or record by describing the morphology and number of a particular plant species at a given area and a particular time. The floral study is a study we use to describe the variety of plant species in a specific area of a country.

The present study deals with the documentation of the floral diversity within the College campus. The Jaysingpur College, Jaysingpur is situated in the heart of Jaysingpur city and has quite an impressive amount of plant diversity, including both monocotyledons and dicotyledons. The various trees and bushes associated with the field serves as a roosting place of the different species of birds at different times of the day.

Geographic Location and Climatic Conditions

Jaysingpur College, Jaysingpur was established by Anekant Society way back in 1964 with the inspiration from the blessings of Saint Late Samantbhadra Maharaj. The college is affiliated to the Shivaji University, Kolhapur. The college is government funded as per provisions of the rules of grant-in-aid scheme as operative in Government affiliated colleges. It is creditable for the college to start some, self-financing courses with a view to augment financial sources and also to provide job-oriented education to the students. It got recognition from the University Grants Commission under 2(f) in March 1982 and 12 B in June 2007. Its latitudinal extent varies from 16.770794 N, 74.556805 E. The college campus include Botanic garden, biodiversity garden, Butterfly garden, and medicinal plant Garden. The botanical garden is situated near the office building and includes a diverse flora.

[2]




The Department of Botany has taken initiative in assessment of plant diversity in campus of Jaysingpur College, Jaysingpur. The biodiversity committee recorded a total 15 individual plants were identified in college campus. During this assessment we found that a campus has rich plant diversity which includes 204 genera and 264 species of angiosperms plants.

Botanical Garden

The biodiversity centre and butterfly garden is situated at the left side of entrance gated of college. The butterfly garden is a resting place for various butterfly species.

Lagerstroemia speciosa (L.) Pers.
(ताम्हण)

BUTTERFLY GARDEN

Nerium indicum Mill.

Averrhoa carambola L.

Barleria cristata var. *dichotoma* Roxb.

Zamia furfuracea L.f.

Ixora coccinea L.

Gliricidia sepium (Jacq.) Kunth

Araucaria columnaris Hook.

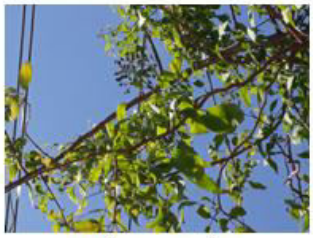
Costus pictus D.Don ex Lindl.

Hibiscus rosa-sinensis L.

Terminalia arjuna (Roxb. ex DC.) Wight & Am.

Saraca asoka

Terminalia bellirica (Gaertn.) Roxb.



Aegle marmelos (L.) Corrêa

Phyllanthus acidus (L.)

Pongamia pinnata (L.) Pierre

Syzygium cumini (L.) Skeels

Pterocarpus marsupium Roxb

Azadirachta indica A.Juss.

Cassia fistula L.

Santalum album L.

Butea monosperma (Lam.) Kuntze

The List of flowering plant families along with number of genera species and individuals

Sr. No.	Family	Number of Genera	Number of Species
1	Acanthaceae	5	7
2	Amaranthaceae	1	1
3	Amaryllidaceae	1	1
4	Anacardiaceae	3	29
5	Annonaceae	3	4
6	Apiaceae	1	1
7	Apocynaceae	13	16
8	Araceae	1	1
9	Araucariaceae	1	1
10	Arecaceae	5	5
11	Aristolochiaceae	1	1
12	Asparagaceae	3	4
13	Asteraceae	3	3
14	**B**alsaminaceae	1	1
15	Bignoniaceae	9	9
16	Bixaceae	1	1
17	Boraginaceae	2	2
18	Burseraceae	1	1
19	Cactaceae	2	2
20	Callophylaceae	1	1
21	Cannaceae	1	1
22	Capparaceae	1	1
23	Caricaceae	1	1
24	Clusaceae	1	1
25	Combretaceae	2	7
26	Convolulaceae	1	1
27	Costaceae	1	1
28	Crassulaceae	2	2
29	Cycadaceae	1	1
30	Ebenaceae	1	1

31	Eleocarpaceae	1	1
32	Euphorbiaceae	5	5
33	Euphorbiaceae	1	1
34	Icacinaceae	1	1
35	Lamiaceae	7	8
36	Lauraceae	1	1
37	Leguminosae	29	30
38	Liliaceae	2	3
39	Lythraceae	3	5
40	Magnoliaceae	1	1
41	Malpighiaceae	1	1
42	Malvaceae	8	8
43	Melastomaceae	1	1
44	Meliaceae	3	3
45	Menispermaceae	1	1
46	Menyanthaceae	1	1
47	Moraceae	4	9
48	Muntingiaceae	1	1
49	Myrristicaceae	1	1
50	Myrtaceae	5	8
51	Nyctaginaceae	2	3
52	Oleaceae	2	4
53	Onagraceae	1	1
54	Oxalidaceae	2	2
55	Passifloraceae	1	1
56	Phyllanthaceae	2	3
57	Piperaceae	1	1
58	Plantaginaceae	1	1
59	Plumbaginaceae	1	1
60	Poaceae	3	6
61	Portulacaceae	1	1
62	Proteaceae	1	1
63	Putranjivaceae	1	1
64	Ranunculaceae	1	1
65	Rhamnaceae	1	1
66	Rosaceae	1	1

67	Rubiaceae	7	9
68	Rutaceae	4	5
69	Santalaceae	1	1
70	Sapindaceae	1	1
71	Sapotaceae	3	4
72	Simaroubaceae	2	2
73	Solanaceae	3	4
74	Sterculaceae	1	1
75	Sterelitziaceae	1	1
76	Verbenaceae	8	9
77	Vitaceae	2	2
78	Xanthorrhoeaceae	1	1
79	Zingiberaceae	3	3
80	Zygophyllaceae	1	1
	Total	**207**	**271**

Note: '*' indicates the numbers of species are more and unable to count

LIST OF PLANT SPECIES ALONG WITH FAMILY AND NUMBER OF INDIVIDUAL'S RECORDED

Sr. No.	Family	Botanical Name	No. of Individuals
1	Acanthaceae	*Ruellia* sps.	2
2		*Justicia adhatoda* L.	3
3		*Barleria cristata* L.	2
4		*Barleria involucrata* var. *elata* (Dalzell) C.B.Clarke	3
5		*Barleria prionitis* L.	2
6		*Crossandra infundibuliformis* (L.) Nees	2
7		*Andrographis paniculata* (Burm. A) Nees	1
8	Amaranthaceae	*Achyranthus aspara* L.	1
9	Amaryllidaceae	*Crinum* species	4
10	Anacardiaceae	*Anacardium occidentale* L.	1
11		*Mangifera indica* L.	2
12		*Mangifera indica* (Alphonso)	1
13		*Mangifera indica* (Amrapali)	1
14		*Mangifera indica* (Chandrama)	1
15		*Mangifera indica* (Dsheri)	1
16		*Mangifera indica* (Dudhpeda)	1
17		*Mangifera indica* (Fernandin)	1
18		*Mangifera indica* (Goa mankur)	1
19		*Mangifera indica* (Karel)	1
20		*Mangifera indica* (Keitt)	1
21		*Mangifera indica* (Kensington)	1
22		*Mangifera indica* (Kent)	1
23		*Mangifera indica* (Kesar)	1
24		*Mangifera indica* (Kingfon)	1
25		*Mangifera indica* (Kokanruchi)	1
26		*Mangifera indica* (Lily)	1

27		*Mangifera indica* (Mallika)	1
28		*Mangifera indica* (Nilam)	1
29		*Mangifera indica* (Palmar)	1
30		*Mangifera indica* (Payri)	1
31		*Mangifera indica* (Ratna)	1
32		*Mangifera indica* (Shehar)	1
33		*Mangifera indica* (Sindhu)	1
34		*Mangifera indica* (Suvernarekha)	1
35		*Mangifera indica* (Tomi Atkins)	1
36		*Mangifera indica* (Totapuri)	1
37		*Mangifera indica* (Vanraj)	1
38		*Semecarpus anacardium* L. f.	1
39	Annonaceae	*Polyalthia longifolia* (Sonn.) Thwaites	15
40		*Artabotrys hexapetalus* (L. f.) Bhandari	5
41		*Annona reticulata* L.	2
42		*Annona squamosa* L.	8
43	Apiaceae	*Centella asiatica* (L.) Urb	1
44	Apocynaceae	*Alstonia scholaris* (L.) R.Br.	29
45		*Nerium oleander* L. (Yellow)	5
46		*Nerium oleander* L. (Pink)	4
47		*Plumeria alba* L. (Yellow)	2
48		*Catharanthus roseus* (L.) G. Don	10
49		*Nerium oleander* L. (White)	5
50		*Calotropis gigantea* (L.) Dryand.	2
51		*Plumeria alba* L. (White)	2
52		*Calotropis procera* (Ait.) R. Br.	1
53		*Carissa carandus* L.	2
54		*Gymnema sylvestris* R. Br.	1
55		*Hemidesmus indicus* (L.) Schult	3
56		*Holarrhena pubescens* Wall. Ex G. Don	1

57		*Rouvolfia serpentina* (L.) Kurz.	4
58		*Taberbnaemontana alternifolia* (Roxb.) Nicols & Suresh	1
59		*Tylopjora indica* (Burmf.) Merr.	1
60	Araceae	*Dieffenbachia seguine* (Jacq.) Schott	1
61	Araucariaceae	*Araucaria columnaris* (G.Forst.) Hook.	2
62	Arecaceae	*Archontophoenix alexandrae* (F.Muell.) H. Wendl. & Drude	1
63		*Arecacatechu* L.	4
64		*Cocos nucifera* L.	2
65		*Acorus calamus* L.	2
66		*Dypsis lutescens* Beentje & deansf	15
67	Aristolochiaceae	*Aristolochia ringens* Vahl	10
68	Asparagaceae	*Polianthes tuberosa* L.	3
69		*Chlophytum comosom* (Thunb.) Jacq.	2
70		*Chlophytum laxum* R.Br.	2
71		*Dracaena deremensis* Engl.	1
72	Asteraceae	*Stevia reboudiana*	1
73		*Tagetes erecta* L.	***
74		*Tridax procumbens* L.	***
75	**B**alsaminaceae	*Impatians balsamina* L.	2
76	Bignoniaceae	*Tabebuia aurea* (Silva Manso) Benth. & Hook.f. ex S. Moore	2
77		*Tecoma stans* (L.) Juss. ex Kunth	2
78		*Millingtonia hortensis* L. f.	5
79		*Spathodea campanulata* P. Beauv.	4
80		*Jacranda acutifolia* Humb.	2
81		*Kigelia africana* (Lam) Benth.	2
82		*Oroxylum indicum* (L.) Kurz.	1
83		*Steropermum chelonoides* DC.	1
84		*Tabobia rosea* DC.	2

85	Bixaceae	*Bixa orellana* L.	1
86	Boraginaceae	*Heliotropium indicum* L.	1
87		*Cordia dichotoma* G. Froster	1
88	Burseraceae	*Commiphora wightii* (Arn.) Bhandari	1
89	Cactaceae	*Selenicereus undatus*	16
90		*Epiphyllum oxypetalum* (DC.) Haw.	2
91	Callophylaceae	*Mesua ferrea* L.	4
92	Cannaceae	*Canna indica* L.	2
93	Capparaceae	*Caparis* species	4
94	Caricaceae	*Carica papaya* L.	2
95	Clusaceae	*Garcinia indica* (Thouars) Choisy	2
96	Combretaceae	*Terminalia catappa* L.	12
97		*Terminaliabellirica* (Gaertn.) Roxb.	3
98		*Terminalia arjuna* (Roxb. ex DC.) Wight & Am.	10
99		*Combretum indicum* (L.) DeFilipps	2
100		*Terminalia chebula* Retz.	1
101		*Terminalia eliptica* Willd.	1
102		*Terminalia paniculata* Roth	1
103	Convolulaceae	*Ipomea carnea* L.	1
104	Costaceae	*Costus pictus*	2
105	Crassulaceae	*Bryophyllum pinnatum* (Lam.) Oken	5
106		*Kalanchoe laciniata* (L.) DC	4
107	Cycadaceae	*Cycas revoluta* Thunb	2
108	Ebenaceae	*Dispyrus melanoxylum* Roxb.	1
109	Eleocarpaceae	*Elaeocarpus angustifolius* Blume	2
110	Euphorbiaceae	*Jatropha gossypiifolia* L.	17
111	Euphorbiaceae	*Ricinus communis* L.	5
112		*Jatropha curcas* L.	2
113		*Euphorbia geniculata* Orteg	***
114		*Mallotus philippensis* (Lam.) Mull Arg	5

115		*Phyllanthus officinalis* (L.)	2
116	Icacinaceae	*Nothopodytis nimoniana* (Grahm)	1
117	Lamiaceae	*Tectona grandis* L. f.	7
118		*Gmelina arborea* Roxb.	1
119		*Clerodendrum thomsoniae* Balf. f.	3
120		*Leucas aspara* (Willd.) Link	1
121		*Mentha arvensis* (L.)	2
122		*Ocimum bacilum* L.	1
123		*Ocimum sanctum* Linn	15
124		*Oscimum americum* L.	6
125	Lauraceae	*Cinnamomum tamala* (Buch.-Ham.) T.Nees & Eberm.	2
126	Leguminosae	*Peltophorum pterocarpum* (DC.) K. Heyne	41
127		*Tamarindus indica* L.	14
128		*Gliricidia sepium* (Jacq.) Walp.	10
129		*Albizia saman* (Jacq.) Merr. Syn: *Samaneasaman* (Jacq.) Merr.	26
130		*Parkia biglandulosa* Wight & Arn.	5
131		*Pongamia pinnata* (L.) Pierre	29
132		*Dalbergia sissoo* DC.	15
133		*Sesbania sesban* (L.) Merr.	10
134		*Delonix regia* (Hook.) Raf.	28
135		*Bauhinia variegata* L.	8
136		*Dichrostachys cinerea* Brenen & Brummit	3
137		*Leucaena leucocephala* (Lam.) de Wit	13
138		*Mitragyna parvifolia* (Roxb.) Korth.	8
139		*Senna siamea* (Lam.) H.S. Irwin & Barneby	5
140		*Pithecellobium dulce* (Roxb.) Benth.	2
141		*Cassia fistula* L.	9
142		*Murraya paniculata* (L.) Jack	1
143		*Prosopiscineraria* (L.) Druce	**4**

144		*Caesalpinia pulcherrima* (L.) Sw.	22
145		*Senna tora* (L.) Roxb.	6
146		*Abrus precatoris* L.	1
147		*Acacia auriculoformis* Cunn ex. Benth	1
148		*Acacia concinna* (Willd.) DC	2
149		*Bauhinia recemosa* Lam.	1
150		*Butea monosperma*(Lam.) Kuntze	2
151		*Caesalpinia bonduc* (L.) Roxb.	1
152		*Cassia surattensis*Burm. F.	1
153		*Leucaena latisiliqua* (L.) Gillis	5
154		*Pterocarpus marsupium* Roxb	4
155		*Saraca asoka* (Roxb.) Willd	2
156	Liliaceae	*Allium sativum* L.	1
157		*Asparagus racemosus* Willd.	5
158	Lythraceae	*Punica granatum* L.	3
159		*Cuphea ignea* A.DC.	1
160		*Cuphea ignea* A.DC.	1
161		*Lagerstroemia reginae* Roxb.	1
162		*Lagerstroemia speciosa* (L.) Pers.	2
163	Magnoliaceae	*Magnolia champaca* (L.) Baill. ex Pierre	5
164	Malpighiaceae	*Hiptage benghalensis* (L) Kurz.	1
165	Malvaceae	*Ceiba pentandra* (L.) Gaertn.	1
166		*Sterculia foetida* L.	5
167		*Bombax ceiba* L.	1
168		*Adansonia digitata* L.	1
169		*Hibiscus rosa-sinensis* L.	2
170		*Abelmoschus moschatus* Medik.	1
171		*Helicterus isora* L.	1
172		*Thespesia populnea* Correa.	2
173	Melastomaceae	*Memecylon umbellatum*Burmf	1

174	Meliaceae	*Azadirachta indica* A.Juss.	73
175		*Swietenia mahagoni* (L.) Jacq.	10
176		*Khaya senegalensis* (Desv.) A.Juss.	2
177	Menispermaceae	*Tinospora sinensis* (Lour.) Merr.	5
178	Menyanthaceae	*Nymphoides indicus* (L.) Kuntze	5
179	Moraceae	*Ficus amplissima* Sm.	21
180		*Ficus hispida* L. f.	10
181		*Ficus benghalensis* L.	25
182		*Ficus religiosa* L.	16
183		*Ficuscarica* L.	2
184		*Artocarpus hirsutus* Lam.	1
185		*Artocarpus heterophyllus* Lam.	1
186		*Morus alba* L.	200
187		*Artocarpus altilis* Fosberg.	2
188	Muntingiaceae	*Muntingia calabura* L.	1
189	Myrristicaceae	*Myristica fragrans*	1
190	Myrtaceae	*Eucalyptus globulus* Labill.	5
191		*Syzygium cumini* (L.) Skeels	8
192		*Callistemon brachyandrus* Lindl.	5
193		*Psidium guajava* L.	3
194		*Pimenta dioca* Merrill	1
195		*Syzigium aromaticum* Merrill & perry	1
196		*Syzigiums amarangense* Merrill & perry	1
197		*Syzygium aromaticum* (L.) Merrill & Perry	1
198	Nyctaginaceae	*Bougainvillea spectabilis* Willd.	5
199		*Bougainvillea spectabilis* Willd.	10
200		*Boerhavia repens* var. *diffusa* (L.) Hook f.	1
201	Oleaceae	*Jasminum grandiflorum* L.	1
202		*Jasminum sambac* (L.) Aiton	4
203		*Jasminum auriculatum* Vahl	1

204		*Nyctanthus arbor-tritis*	1
205	Onagraceae	*Ludwigia sedioides* (Humb. & Bonpl.) H. Hara	2
206	Oxalidaceae	*Averrhoa carambola* L.	1
207		*Oxalis corniculata* L.	***
208	Passifloraceae	*Passiflora edulis* Sims	2
209	Phyllanthaceae	*Phyllanthus emblica* L.	5
210		*Phyllanthus acidus* (L.)	1
211		*Sauropus adndrogynus* (L.) Merrill	1
212	Piperaceae	*Piper betle* L.	2
213	Plantaginaceae	*Russelia equisetiformis* Schltdl. & Cham.	2
214	Plumbaginaceae	*Plumbago zeylanica* L.	50
215	Poaceae	*Dendrocalamus strictus* (Roxb.) Nees	5
216		*Crysopogon zizinoides* (L.) Roberty	1
217		*Cymbopogon aromaticum* Watson	2
218		*Cymbopogon citrates* (DC) Stapf.	3
219		*Dendrocalamus asper* Baker ex. Heyne	2
220		*Dendrocalamus stockssi* K. M. Kumar & Unnikr.	10
221	Portulacaceae	*Portulaca oleracea* L.	2
222	Proteaceae	*Grevillea robusta* A. Cunn. ex R.Br.	34
223	Putranjivaceae	*Putranjiva roxburghii* Wall.	1
224	Ranunculaceae	*Naravelia zeylanica* (L.) DC.	1
225	Rhamnaceae	*Ziziphus mauritiana* Lam.	3
226	Rosaceae	*Rosa indica* L.	4
227	Rubiaceae	*Ixora*Sps.	11
228		*Coffea arabica* L.	2
229		*Hamelia patens* Jacq.	2
230		*Neolamarckia cadamba* (Roxb.) Bosser	3
231		*Ixora* Sps. (White)	1
232		*Ixora* Sps. (Singapur)	15
233		*Pentas lanceolata* (Forssk.) Deflers (Pink)	15

234		*Pentas lanceolata* (Forssk.) Deflers (Red)	10
235		*Morinda citrifolia* L.	1
236		*Spermadictyonsu aveolens* Roxb	1
237	Rutaceae	*Murraya koenigii* (L.) Spreng.	4
238		*Citrus maxima* (Burm.) Men.	2
239		*Limonia acidissima* Groff	3
240		*Citrus limon* (L.) Osbeck	6
241		*Aegle marmelos* (L.) Corrêa	3
242	Santalaceae	*Santalum album* L.	23
243	Sapindaceae	*Sapindus trifoliatus* L.	2
244	Sapotaceae	*Mimusops elengi* Bojer	9
245		*Madhuca indica*J.f. Gmel.	1
246		*Manilkara hexandra* (Roxb.) Dubard	3
247		*Manilkara zapota* (L.) P. Royan	2
248	Simaroubaceae	*Alianthus excels* Roxb.	4
249		*Simarouba glauca* DC.	2
250	Solanaceae	*Cestrum diurnum* L.	2
251		*Solanum virginianum* L.	2
252		*Cestrum nocturnum* L.	1
253		*Withania somnifera*	3
254	Sterculaceae	*Gauzuma ulmifolia* Lam.	1
255	Sterelitziaceae	*Ravenala madagascariensis* Sonn.	1
256	Verbenaceae	*Duranta erecta* L.	***
257		*Premna integrifolia* Willd.	3
258		*Lantana camara* L.	115
259		*Stachytarpheta cayennensis* (Rich.) Vahl (Purple)	10
260		*Verbena hybrida* Groenl. & Rumpler	10
261		*Stachytarpheta cayennensis* (Rich.) Vahl (Red)	15
262		*Lawsonia alba* Lam.	***
263		*Rotha serrata* (L.) Steane & Mabb.	1

264		*Vitex nigundo* L.	1
265	Vitaceae	*Cissus quadrangifolia* L.	2
266		*Vitis vinifera* L.	5
267	Xanthorrhoeaceae	*Aloe vera* (L.) Burm.f.	10
268	Zingiberaceae	*Hedychium coronarium* J.Koenig	5
269		*Curcuma longa* L.	2
270		*Elettaria cardamomum* (L.) Maton.	1
271	Zygophyllaceae	*Tribulus terestris* L.	***
			1556

Note:* The numbers of species are more and unable to count

SUMMARY

- The College has biodiversity rich campus which includes, 'Nakshatra' Botanical garden, Biodiversity centre and medicinal Plant garden, and Butterfly garden.
- The botanical gardens consist of medicinally and economically important horticultural crop plants
- The college campus consists of 80 angiosperm families.
- The present study revealed that, the 80 plant families include about 207 diverse genera and total 271 species.
- During survey a total of 1556 were reported from Jaysingpur College, Jaysingpur Campus.

Recommendations

Key recommendation for improving campus environment:

- The plant species must be protected from predators
- The college should focus on plantation of more native plant species
- The more efforts should be taken for plantation and conservation of rare, endemic and endangered plant species.

COMMITTEE

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1	Prof. (Mrs.) Manisha V. Kale	Ag. Principal
2	Prof. T. G. Ghatge	IQAC Coordinator
3	Dr. Suraj D. Umdale	Member
4	Dr. Sachinkumar R. Patil	Member

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