

# GREEN AUDIT REPORT-2022



*IQAC Initiative :*

*Survey & Report By: Dr. Neeta Bhatt*



**GOVT. PG COLLEGE  
KOTDWAR**

## **INTRODUCTION:**

Green Audit is a process of systematic identification, quantification, recording, reporting and analysis of components of the environmental diversity of the institute. It aims to analyze environmental practices within and outside the concerned place, which will impact on the eco-friendly atmosphere. A Green Audit is a valuable means for a college to determine how and where they are using the most energy, water or other resources; the college can then consider how to implement changes and make savings. It can create health consciousness and promoting environmental awareness, values and ethics. It provides staff and students better understanding of the green impact on campus. An institutional self-enquiry is a natural and necessary outgrowth of a quality educational institution. Thus, the college must 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 concerned about environmental sustainability is more prevalent. The rapid urbanization and economic development at local, regional and global levels have led to several environmental and ecological crises. In this background, it becomes essential to adopt the system of the Green Campus for the institutes, which will lead to sustainable development and the same time reduce a sizable amount of atmospheric same time reduce a sizable amount of atmospheric CO<sub>2</sub> from the environment. The National Assessment and Accreditation Council, New Delhi (NAAC) has made it mandatory for all Higher Educational Institutions should submit an annual Green Audit Report. Moreover, it is for Higher Education Institutions to ensure that they contribute to the reduction of global warming through carbon footprint reduction measures.

## ABOUT COLLEGE:



Dr. Pitamber Datt Barthwal Himalayan P.G. College was established in 1971 by Uttar Pradesh Govt. In the beginning, undergraduate courses in science and arts were started. In 1974-75 college got the status of Post Graduate college. Department of B.Ed. was started in 1979. IGNOU study center was established in 1999. The expansion and development of the college have taken place within the broader guidelines of the National Education Policy and as per the plans for the educational developments of the state. The college has now become a multi-faculty institution providing Arts, Commerce and Science Courses at Under Graduate and Postgraduate levels. The college is affiliated with Sri Dev Suman Uttarakhand University.

The College caters to the need for the higher education of the students from surrounding rural hilly areas. Many students belong to the weaker and poorer section of society. The majority of the students want higher education as means of getting a job, especially in the Government Sector.

The college has different departments offering Under Graduate and Post Graduate courses in three faculties of Arts, Commerce and Science. The college volunteered for institutional accreditation by the National Assessment and Accreditation Council (NAAC), Bangalore and got a 'B' grade. The college started to impart higher education to the poor students of the backward hilly area. Being a multi-faculty college it provides knowledge and skill through various academic, curricular, co-curricular and extra-curricular activities.

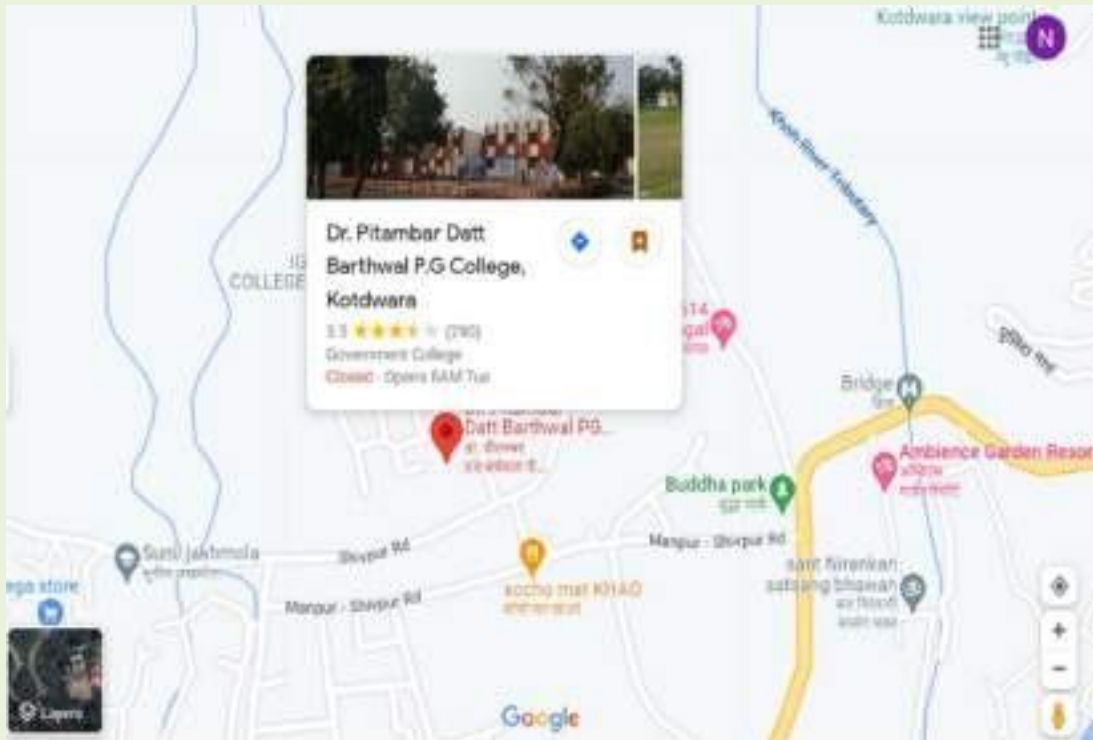
Professional programmes to shape the students into sensitive and responsible citizens. Further, the college has introduced 1-year diploma course in Nursery Technology and Orchard Management and a three-year degree course in B.Sc. Biotechnology. Beside Open University of Uttarakhand has started a study centre for various courses. Uttarakhand Space Application Centre Dehradun has launched a satellite system (EDUSAT) to disseminate knowledge to the remote population of Uttarakhand.

The college has earned U.G.C recognition under 2f and 12B. The college has now different departments offering Under Graduate and Post Graduate courses in four faculties i. e. Arts, Commerce, Science and Faculty of Education. The college volunteered for institutional accreditation by the National Assessment and Accreditation Council (NAAC), Bangalore and got a 'C' grade in 2004, 'B' grade in 2014.

The college is located in lush green forest area and surrounded by a dense Reserve Forest along its 3 sides. The IQAC of college is constantly make efforts to improve its qualitative aspects and to contribute towards a clean and green environment. A Green Audit Report is an effort in this direction and being released for the second consecutive year. .



## Google Location Map of the College



Accessed at : <https://goo.gl/maps/KYxggBeGP5QrNkmL6>

### OBJECTIVES:

- To calculate the consumption of water (usage and wastage) in college campus.
- To calculate the number of trees and herbal plants in the college campus.

### METHODOLOGY:

In order to perform green audit, the methodology included different steps/tools such as:

- Preparation of questionnaire
- Physical inspection of the campus
- Observation and review of the documentation
- Interviewing key persons

- Findings
- Suggestions

The Study will cover the following areas to summarize the present status of environment management in the campus:

- Water management
- Green Area management

## **The QUESTIONNAIRE**

### **FOR WATER MANAGEMENT**

1. The uses of water in the college?

Drinking /Gardening /Laboratory experiment /Washroom  
/Washing purpose etc.

2. What are the sources of water in the college?

Tube well (Borewell) /Jalsansthan.

3. How many Tube wells are there in the college?

Only one.

4. No. of motors used for List pumping water from each bore well?

01(175 hp)

5. What is the depth of each bore well?

N/A

6. What is the present depth of water in each bore well?

N/A

7. How does college store water?

The College stores water in Collection Tanks placed on the  
Ground and Building roofs.

8. Quantity of water stored in your overhead water tank? (In liters)

58,000 liters.

9. Quantity of water pumped every day? (In liters)

50K liters by Tube well Tank.

10. If there is water wastage, specify why.

Water wastage is due to a lack of proper drainage and rainwater harvesting system.

11. Where does waste water come from?

Waste water comes from laboratory, washroom, RO system etc.

12. Where does the waste water go?

Drainage.

13. What are the uses of waste water in the college?

There is no proper use of waste water.

14. Is there any treatment for the lab water?

No.

15. Whether green chemistry methods are practiced in Labs?

No.

16. Trimonthly water charges paid to water connections.

₹ 3000/- tri monthly is being paid to Water Supply Department.

17. No. of water coolers/R.O. Amount of water used per day? (In liters)

There are 06 water coolers (functional 05, non-functional 01). The total capacity used is 1000 liters.

**18.** No. of water taps in the canteen. Amount of water used per day?

No. of water taps in the canteen is one only, and 500 liters water is used per day.

**19.** Amount of water used per day for garden use.

Approx. 500 liters per day.

**20.** In there any water used for agricultural purposes?

No.

**21.** Does College harvest rain water?

Currently no rain water harvesting in the campus but college is planning to establish one.

**22.**How many of the taps are leaky? Estimate the amount of water lost per day?

10% of total tap. About 100 liter is being wasted.

**23.**Are there signs reminding people to turn off the water?      Yes /

No

Yes. Most of the signage are dilapidated and need fresh writing.

**24.** Are there any waterless toilets?

Yes, 03. (2 in library building and 1 near chemistry are waterless and need arrangement of water)



**25.** Is there any water management plan in the college?

Yes, the Principal supervise water management planning from time to time.

**26.** Any other significant point with regard to water conservation/wastage in the campus?

There is a need to set up a rainwater harvesting system and wastewater management be planned so as to use it for gardening purposes.

### **FOR GREEN CAMPUS MANAGEMENT**

**1.** Is there a garden in college?

Yes, there is one Botanical Garden.

**2.** Do Students spend time in the garden?

Yes, Post Graduate students visit in garden for study purposes.

**3.** List the trees in the Campus, with approx. numbers of each species.

There are 50 trees species within the campus. (Enclosure 01).

**4.** List the species planted by the students, with numbers.

The students planted species of ornamental plants in the Botany Department and the Botanical garden. (Enclosure 02)

**5.** Whether you have displayed scientific names of the trees in the campus?

Yes. Most of the tagging need to change.

**6.** Is there any plantation in college campus? If yes specify area and type of Plantation.

There is no specific plantation drive within the campus but the campus is surrounded by Reserve Forest Area so various drive is carried out by the Forest Department with the active help of Students.

**7.** Is there any vegetable garden in the College?

No.

**8.** What is the medicinal garden in the College?

There is no separate medicinal garden, but medicinal plants spread over the campus. (Refer enclosure 3)

**9.** What are the vegetables cultivated in your vegetable garden?

No.

**10.** How much water is used in the vegetable garden and other garden?

No.

**11.** Who is in-charge of gardens in the College?

Department of Botany.

**12.** Are you using any type of recycled water in your garden?

No.

**13.** List the name of fertilizers used in your gardens?

Organic fertilizer.

**14.** Do you have any composting pit in your college?

No.

**15.** Any threatened plant species planted?

Yes, there are two such threatened species: Sandal (*Santalum album*-vulnerable), Rudraksh (*Elaeocarpus ganitrus*-critically endangered).

**16.** Is there a nature club in your college?

Yes, Environment Cell.

**17.** Is there any fruit yielding plant in your college? If yes details of the trees planted.

Yes. There are many fruit yielding plants: Mango, Black plum, Guava etc. in the campus. (Enclosure 3)

**18.** Any other significant point regarding green campus management?

Suggestions – Need of Rain water harvesting system, Vermicompost pit, Organic manure.

**19.** List the innovative Practices by the college to reduce the environmental pollution?

One of the innovative practice to reduce pollution is that motor based vehicles are not allowed around faculty buildings and administrative building. All the vehicles are being parked in parking area only.

Besides, the students take part in various plantation drive organized by forest department.

## **PHYSICAL INSPECTION OF THE CAMPUS**

Four days physical inspection of the campus was through in dates 31/08/22, 02/09/22 and 05/09/22 by Green Audit Team. The main emphasis of the inspection was to evaluate the green area and water management.

## **OBSERVATION AND REVIEW OF THE DOCUMENTATION**

Green Audit in college began to assess the status of the green cover of the campus, followed by water management practice. The Green Audit team monitored different facilities of the college and physically examined different types of utilities (taps, toilets, water tanks etc.) as well as measuring the usage per item. Data collection was done by inspection of college records. All the relevant documents were verified. The estimated figures arrived at through surveys and discussions.

## **INTERVIEWING KEY PERSONS**

The Green Audit Team visited over college campus during the inspection period. The team talked to all HODs and non-teaching staff. The data relating to the laboratories, classrooms, stores etc. were given by non-teaching staff. The person authorized by the principal manages water supply in all departments, laboratories, canteen, botanical garden, toilets etc. helped the Green Audit team with water supply on campus. Botany Department helped us prepare the list of plants with their botanical name and families.





List of Tree species of college campus

S No.	Common Name	Botanical Name	Family	No of plant
1	Amaltas/Drumstick	<i>Casia fistula</i>	Caesalpinacea e	14
2	Amla/Indian gooseberry	<i>Phyllanthus emblica</i>	Phyllanthacea e	07
3	Amrud/ <i>Guava</i>	<i>Psidium guajava</i>	Myrtaceae	09
4	Arjun	<i>Terminalia arjuna</i>	Combretaceae	01
5	Ashoka	<i>Polyalthia longifolia</i>	Annonaceae	09
6	Babool	<i>Acacia nilotica</i>	Mimosaceae	02
7	Bamboo	<i>Bambusa vulgaris</i>	Poaceae	02
8	Banyan	<i>Ficus benghalensis</i>	Moraceae	02
9	Black Myrobalan	<i>Terminalia chebula</i>	Combretaceae	01
10	Bottle Brush	<i>Callistemon lanceolatus</i>	Myrtaceae	19
11	Calliandra	<i>Calliandra</i>	Fabaceae	03
12	Cassia	<i>Cassia sp.</i>	Caesalpinacea e	03
13	Castor oil plant	<i>Jatropha curcas</i>	Euphorbiaceae	03
14	Chandan/Sandal	<i>Santalum album</i>	Santalaceae	01
15	Cheer	<i>Pinus roxburghii</i>	Pinaceae	02
16	Citrus	<i>Citrus sp.</i>	Rutaceae	09

17	Daikan	<i>Melia azedarach</i>	Meliaceae	08
18	Glossy Shower	<i>Senna surattensis</i>	Leguminosae	01
19	Gulmohar	<i>Delonix regia</i>	Fabaceae	04
20	Hedge Plant	<i>Duranta repens</i>	Apocynaceae	26
21	Jamun	<i>Eugenia jambolana</i>	Myrtaceae	06
22	Kachnar	<i>Bauhinia variegata</i>	Fabaceae	04
23	Kumkum Tree	<i>Mallotus philippensis</i>	Euphorbiaceae	02
24	Lemon	<i>Citrus aurantifolia</i>	Rutaceae	01
25	Mango	<i>Mangifera indica</i>	Anacardiaceae	05
26	Monkey Puzzle Tree	<i>Araucaria araucana</i>	Araucariaceae	05
27	Morpankhi	<i>Thuja occidentalis</i>	Cupressaceae	17
28	Neem	<i>Azadirachta indica</i>	Meliaceae	13
29	Norfolk Island pine	<i>Araucaria heterophylla</i>	Araucariaceae	02
30	Oleander	<i>Nerium oleander</i>	Apocynaceae	70
31	Pakad	<i>Ficus virens</i>	Moraceae	01
32	Papdi/Chilbil	<i>Holoptelia integrifolia</i>	Ulmaceae	09
33	Parijat	<i>Nyctanthes arbor-tristis</i>	Oleaceae	03
34	Peach/Aadu	<i>Prunus persica</i>	Rosaceae	04
35	Peacock tree	<i>Caesalpinia pulcherrima</i>	Caesalpinaceae	01
36	Peepal	<i>Ficus religiosa</i>	Moraceae	01

37	Powder-puff	<i>Calliandra</i>	Fabaceae	01
38	Pride of India	<i>Lagerstroemia speciosa</i>	Lythraceae	01
39	Raat ki rani	<i>Cestrum nocturnum</i>	Solanaceae	01
40	Rudraksh	<i>Elaeocarpus ganitrus</i>	Elaeocarpaceae	01
41	Safeda	<i>Eucalyptus sp.</i>	Myrtaceae	05
42	Shal	<i>Shorearobusta</i>	Dipterocarpaceae	01
43	Silk Oak	<i>Gravillearobusta</i>	Proteaceae	40
44	Stone apple(bel)	<i>Aegle marmelos</i>	Rutaceae	02
45	Teak/Sagon	<i>Tectona grandis</i>	Verbenaceae	81
46	Tejpatta	<i>Cinnamomum tamala</i>	Lauraceae	01
47	Temple tree	<i>Plumeria obtusa</i>	Apocynaceae	05
48	Trumpet bush	<i>Tecoma stans</i>	Bignoniaceae	02
49	Varun	<i>Crataeva religiosa</i>	Capparidaceae	09
50	Walnut/akhrot	<i>Juglans regia</i>	Juglandaceae	01

**Enclosure 02****Ornamental Plants**

<b>S No.</b>	<b>Common Name</b>	<b>Botanical Name</b>	<b>Family</b>
1	Aloe vera	<i>Aloe barbadensis miller</i>	Asphodelaceae
2	Amaltas / Drumstick	<i>Casia fistula</i>	Caesalpinaceae
3	Arabian jasmine	<i>Jasminum sambac</i>	Oleaceae
4	Arrowhead Plant	<i>Syngonium podophyllum</i>	Araceae
5	Ashoka	<i>Polyalthia longifolia</i>	Annonaceae
6	Bamboo	<i>Bambusa vulgaris</i>	Poaceae
7	Basket Plant	<i>Callisia fragrans</i>	Commelinaceae
8	Beech Fern	<i>Phegopteris sp</i>	Thelypteridaceae
9	Begonia	<i>Begonia sp</i>	Begoniaceae
10	Bottle Brush	<i>Callistemon lanceolatus</i>	Myrtaceae
11	Cactus	<i>Echinopsis subelenudata cardena</i>	Cactaceae
12	Chandni/crepe jasmine	<i>Tabernaemontana divaricata</i>	Apocynaceae
13	Cheer	<i>Pinus roxburghii</i>	Pinaceae
14	China Box	<i>Murraya paniculata</i>	Rutaceae
15	China Palm	<i>Livistona chinensis</i>	Arecaceae
16	Chinese banyan	<i>Ficus microcarpa</i>	Moraceae

17	Chinese evergreen	<i>Aglaonema commutatum</i>	Araceae
18	Common Prickly Pear	<i>Opuntia monacantha</i>	Cactaceae
19	Corn Plant	<i>Dracaena fragrans</i>	Asparagaceae
20	Croton	<i>Codiaeum variegatum</i>	Euphorbiaceae
21	Devil's Backbone	<i>Euphorbia tithymaloides</i>	Euphorbiaceae
22	Devil's vine	<i>Epipremnum aureum</i>	Araceae
23	Dum cane/Tuft root	<i>Dieffenbachia seguine</i>	Araceae
24	Flame nettle	<i>Coleus sp.</i>	Lamiaceae
25	Flame of wood	<i>Ixora coccinea</i>	Rubiaceae
26	Ganda/marigold	<i>Tagetes erectus</i>	Asteraceae
27	Golden Arrow	<i>Plumeria pudica</i>	Apocynaceae
28	Golden trumpet	<i>Allamanda cathartica</i>	Apocyanaceae
29	Gudhal	<i>Hibiscus sp.</i>	Malvaceae
30	Gulmohar	<i>Delonix regia</i>	Fabaceae
31	Heart leaved/Moonseed	<i>Tinospora cordifolia</i>	Menispermaceae
32	Hedge Plant	<i>Duranta repens</i>	Apocynaceae
33	Japanese Pink	<i>Dianthus chinensis</i>	Caryophyllaceae
34	Joy weed	<i>Alternanthera sp.</i>	Amaranthaceae
35	Kachnar	<i>Bauhinia variegata</i>	Fabaceae



36	Keli/Canna lily	<i>Canna sp.</i>	Cannaceae
37	Longleaf Brake	<i>Pteris longifolia</i>	Pteridaceae
38	Maiden Hair	<i>Adiantum sp</i>	Pteridaceae
39	Morpankhi	<i>Thuja occidentalis</i>	Cupressaceae
40	Moses in the cradle	<i>Tradescantia spathacea</i>	Commelinaceae
41	Norfolk Island pine	<i>Araucaria heterophylla</i>	Araucariaceae
42	Oleander	<i>Nerium oleander</i>	Apocynaceae
43	Parijat	<i>Nyctanthes arbor-tristis</i>	Oleaceae
44	Passion Vines	<i>Passiflora sp</i>	Passifloraceae
45	Patharchatta	<i>Kalanchoe pinnata</i>	Crassulaceae
46	Peacock tree	<i>Caesalpinia pulcherima</i>	Caesalpinaceae
47	Ponytail Palm	<i>Beaucarnea recurvata</i>	Asparagaceae
48	Powder-puff	<i>Calliandra</i>	Fabaceae
49	Pride of India	<i>Lagerstroemia speciosa</i>	Lythraceae
50	Raat ki rani	<i>Cestrum nocturnum</i>	Solanaceae
51	Red flag bush	<i>Mussaenda erythrophylla</i>	Rubiaceae
52	Rose	<i>Rosa indica</i>	Rosaceae
53	Rubber Plant	<i>Ficus elastica</i>	Moraceae
54	Rubber vine	<i>Cryptostegia sp.</i>	Apocynaceae
55	Sago Palm	<i>Cycas revoluta</i>	Cycadaceae`

56	Santa rita flower	<i>Bougainvillea sp.</i>	Nyctaginaceae
57	Silk Oak	<i>Gravillea robusta</i>	Proteaceae
58	Snake Plant	<i>Dracaena trifasciata</i>	Asparagaceae
59	Song of India	<i>Dracaena reflrxa</i>	Asparaganceae
60	Sparrow Grass	<i>Asparagus officinalis</i>	Asparagaceae
61	Spider Plant	<i>Chlorophytum comosum</i>	Asparagaceae
62	Spider wort	<i>Tradeschantia sp.</i>	Commelinaceae
63	Spurge/Pencil Tree	<i>Euphorbia tirucelli</i>	Euphorbiaceae
64	Taro	<i>Callisia repens</i>	Commelinaceae
65	Temple tree	<i>Plumeria obtusa</i>	Apocynaceae
66	The crown of throne/Christ Plant	<i>Euphorbia millii</i>	Euphorbiaceae
67	Ti Plant	<i>Cordyline fruticosa</i>	Asparagaceae
68	Trumpet bush	<i>Tecoma stans</i>	Bignoniaceae
69	Umbrella Plant	<i>Schefflera sp.</i>	Araliaceae
70	Zammia	<i>Zammia sp.</i>	Zamiaceae

### Enclosure 3

#### List of Medicinal Plants

<b>S No.</b>	<b>Common Name</b>	<b>Botanical Name</b>	<b>Family</b>
1	Aloe vera	<i>Aloe barbadensis miller</i>	Asphodelaceae
2	Amaltas/Drumstick	<i>Casia fistula</i>	Caesalpinaceae
3	Amla/Indian gooseberry	<i>Phyllanthus emblica</i>	Phyllanthaceae
4	Aparajita	<i>Clitoriaternatea</i>	Fabaceae
5	Baheda	<i>Terminalia bellirica</i>	Combretaceae
6	Bamboo	<i>Bambusaaurandinacea</i>	Poaceae
7	Broom Grass	<i>Thysanolaena maxima</i>	Poaceae
8	Chandan/Sandal	<i>Santalum album</i>	Santalaceae
9	Cinnamon	<i>Cinnamomum zeylanicum</i>	Lauraceae
10	Citrus	<i>Citrus sp.</i>	Rutaceae
11	Devil's Trumpet	<i>Datura metel</i>	Solanaceae
12	Giloy	<i>Tinospora cordifolia</i>	Menispermaceae
13	Indian Snake Root/Sarpgandha	<i>Rauwolfia serpentina</i>	Apocynaceae
14	Jamun	<i>Eugenia jambolana</i>	Myrtaceae
15	Lemon Grass	<i>Cymbopogon citratus</i>	Poaceae
16	Madagascar Periwinkle	<i>Catharanthus roseus</i>	Apocynaceae

17	Morpankhi	<i>Thuja occidentalis</i>	Cupressaceae
18	Neem	<i>Azadiracta indica</i>	Meliaceae
19	Parijat	<i>Nyctanthes arbor-tristis</i>	Oleaceae
20	Peach/Aadu	<i>Prunus persica</i>	Rosaceae
21	Rudraksh	<i>Elaeocarpus ganitrus</i>	Elaeocarpaceae
22	Sugi	<i>Cryptomeria japonica</i>	Cupressaceae
23	Tejapatta	<i>Cinnamomum tamala</i>	Lauraceae
24	Tulsi/Holy Basil	<i>Ocimum sanctum</i>	Lamiaceae
25	Varun	<i>Crataeva religiosa</i>	Capparidaceae

## PLATE-1



Begonia  
(*Begonia sp*)



Umbrella Plant  
(*Schefflera sp*)



Croton  
(*Codiaeum variegatum*)



Rubber  
(*Ficus elastica*)



**PLATE-2**



Velvet Plant

*(Tradescantia sillamontana)*



Corn Plant

*(Dracaena fragrans)*



Golden Arrow

*(Plumeria pudica)*



Mexican Petunia

*(Ruellia simplex)*

**PLATE 3**



Areca palm  
(*Dypsis lutescens*)



Temple plant  
(*Plumeria obtusa*)



Hedge Plant  
(*Duranta repens*)



Oleander  
(*Nerium oleander*)



## PLATE-4



Glossy Shower  
(*Senna surathensis*)



Safeda plant  
(*Eucalyptus sp*)



Rudraksh  
(*Elaeocarpus ganitrus*)



Varun  
(*Crataeva religiosa*)

**PLATE-5**



Silk Oak  
(*Gravillea robusta* )



Kachnar  
(*Bauhinia variegata* )



Amrud  
(*Psidium guajava* )



Citrus  
(*Citrus sp.* )



**PLATE-6**



Chandan/Sandal  
(*Santalum album* )



Teak/Sagon  
(*Tectona grandis*)



Bottle Brush  
(*Callistemon lanceolatus*)



Amaltas / Drumstick  
(*Casia fistula*)

**PLATE-7 : Water Recourses & Consumption**



**Figure 1**



**Figure 2**



**Figure 3**



**Figure 4**

**PLATE-8 : Water Recourses & Consumption**



**Figure 5**



**Figure 6**



## EXTRA SHOTS





## Flowers in College Campus



# Green Audit Report 2022



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