# S.G.A.GOVERNMENT DEGREE COLLEGE

(Re-accredited by NAAC with 'A' Grade, Affiliated to Andhra University)

YELLAMANCHILI - 531055, ANDHRA PRADESH

# GREEN AUDIT

# Certificate

## HYM International Certifications Pvt. Ltd.

Certified that the Quality Management System of

## SRI GURAJADA APPARAO GOVERNMENT DEGREE COLLEGE

Yellamanchili, Visakhapatnam Dist, Andhra Pradesh, India

has been assessed and found to be in accordance with the requirements of the quality standards

# ISO 9001 : 2015

for the following scope of certification

## PROVIDING EDUCATIONAL SERVICES

Further information about the scope of this certificate and applicability of ISO 9001 : 2015 requirements may be obtained by consulting the organization.

Issue Date : 07/09/2021

Renewal Date : 06/09/2024

1st Surveillance 06/09/2022

2nd Surveillance 06/09/2023

Authorised Signature

Certificate No : Q91864142096

HYM International Certifications Pvt. Ltd

**NOTE: This Certificate is Valid From 06/09/2022 to 06/09/2023**

This is an accredited certificate authorized for issue by Accreditation Service for Certifying Bodies (Europe) Limited who have assessed M/s HYM International Certifications Pvt. Ltd. against defined criteria and in cognisance of ISO 17021:2015 "Conformity Assessment - Requirements for bodies providing audit and Certification of management Systems"

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# GREEN AUDIT REPORT

## Certificate of Green Campus Audit

This is to certify that SGA Govt. Degree College, Yellamanchili, Anakapalli District, Andhrapradesh has successfully undergone "Green Campus Audit" on 05 - 01 – 2022 to assess the Green initiatives planning and efforts carried out in the Campus to keep environment friendly atmosphere to the stake holders was found satisfactory.

Prof. S.B.Padal
Dean,
Department of Horticulture
Andhra University

Dr. B.Chandra Mouli
Lecturer in Botany,
SGA Govt. Degree College
Yellamanchili

Dr.A.Arjuna Apparao
Lecturer in Zoology
SGA Govt. Degree College
Yellamanchili

Dr. M.Vidyakalpana
Lecturer in Chemistry
SGA Govt. Degree College
Yellamanchili

**TEAM MEMBERS:**

1. Convener - Prof. S.B.Padal, Dean, Dept. of Horticulture, Andhra University
2. Members
    i. Dr. B.Chandramouli, Lecturer In Botany
    ii. Dr. A.Arjuna Apparao, Lecturer in Zoology
    iii. Smt. M.Vidya Kalpana, Lecturer in Chemistry

**Objectives of the Green Audit:**

1. To introduce and aware students to real concerns of environment and its sustainability.
2. To conserve the plant biodiversity and to reduce the effects of pollution & waste disposal.
3. To create a healthy, green and pollution free environment in the college.
4. To reduce the energy consumption
5. To suggest the best practices for adding to sustainable developments.
6. To supply chemical free vegetables to hostel students.

**Pre-audit activities** :

1. Conducting the pre-audit meeting
2. Planning the audit. The audit plan was designed in such a way that it accommodated changes based on information gathered during the audit and effective use of resources.
3. Selecting & appointing the audit team and assignment of responsibility to the team.
4. Selecting the auditing site/area.
5. Identification of the scope of auditing.
6. Acquiring background information.
7. Informing the scheduled date of audit to the auditee.

**Onsite activities :**

1. Site inspection is the important step for onsite activity.
2. Assessing the strengths and weaknesses of the auditee‟s management controls and risks associated with their failure were established.
3. Gathering audit evidence i.e, collecting data and information using audit protocol.
4. Communicated with the staff of the auditee to obtain most information.
5. Evaluated the audit evidence against the objectives established for the audit .

**Post-audit :**

1. Preparing a draft report based on the data collected and producing a final audit report.
2. Preparing an action plan for the flaws.
3. Keep a regular watch on the action plan.

**PROCEDURE FOLLOWED:**

In order to perform green audit, the methodology included different tools such as the preparation of questionnaire, physical inspection of the campus, observation and review of the documentation, interviewing key persons and data analysis, measurements and suggestions.

The study covered the following areas to summarize the present status of environment management in the campus.

1. Green area management
2. Water management
3. Energy conservation
4. Waste management
5. E-waste management

1. **Green area management:**

The natural landscape predominates the campus with a rich biodiversity of flora which is taken care by the dedicated team of Botany dept. A continuous monitoring of the biodiversity is carried out by the students, teaching and non-teaching staff.

- The college is maintaining a rich floristic diversity with approximately 205 varieties of documented plants with about 73 trees and other shrubs and herbs.

- Medicinal plants like *Piper betel, Cissus quandangularis, Aloe vera, Euphorbia tirucalli, Ocimum sanctum, Ocimum basilicum, , Gloriosa superb, Costus igneus, , Emblica officinalis,* , Eucalyptus, forest Tulasi, , Bilva, Murrayya , tree are grown.

- Ornamental plants like Passiflora, Money plant, Monstera, Dracaena, Royal palms, Hipiastrum colours, Pandanus spe., Diefenbachia etc.,

- Fruit giving plants like Papaya, Banana, Emblica, are grown. **Organic farming** is done on campus to sensitize the students on sustainable agricultural practices. Biofertilizers like Cow dung, Cow urine, Vermi compost and Vermiwash are using for better yielding .

- Through Eco-club, NCC and NSS, college has organized activities such as Swachh Bharat Abhiyan, Plantation drives etc., **Vanamahotsavam** is celebrated every year to spread the concept of sustainable development and the importance of environment conservation and management.

- Practice of giving planting pots, samplings and bouquets prepared by the students to honor the guests in various college events is also followed. The audit team observed that taps are the major sources of water. Large green area of the college campus allows for percolation of water into the soil there by facilitating the recharge of ground water resources. Water is used for drinking purposes, canteen, toilets, laboratory and gardening. Information gathered from all the departments is analyzed. During the survey, the team observed the following.

- The college is situated in a rainy area. Therefore, the college took initiative of conserving and utilizing rainwater for multiple purposes. As a part of this action plan, **"Rain Water Harvesting Pit"** is behind IQAC hall for the storage of rain water. The rain water is allowed to flow from the roofs of the buildings is directed into the rainwater harvesting pits. Some part of the rain water collected is directly used for gardening purpose. The waste water from the hand wash is directed to plants in the campus.

- Plumbing maintenance is done on a regular basis to prevent the wastage of water in the form of leakages.
- In spite of all these, loss of water is observed in the in form of small leakages.

**Recommendations :**

- Need of regular monitoring, controlling overflows, repairing even minute leakages is essential. There should be a large scale reuse and recycle water system is necessary.

**2. Energy Conservation:**

College is adopting some initiative to reduce energy consumption. Solar energy panels are established to utilize the non- renewable energy resources(alternate source of energy resources i.e., solar energy. Students are habituated to switch-off the lights and fans when they are not in use.

Recommendations: A centralized switch off panel board should be arranged in the college.

**3. Waste Management:**

Waste is an obvious culprit and pollutant, contributing to landfills and toxins which harm the earth's soil and atmosphere. Keeping in mind, the college took various initiatives to reduce the dumping of waste.

# Green & Safe Laboratories:

In the Chemistry laboratories of our college nearly 300 students perform practicals per year. Consequently there is considerable quantity of Chemical wastage and which in turn threatening the safety of the students, health of students and also contributing to environmental pollution in the college campus.

In view of the seriousness of the above problem the lecturers of Department of Chemistry have formed into **"Green & Safe Chem Labs"** committee. The prime objective of this committee is to strictly implement the policy of "**3Rs – Reduce – Reuse – Recycle and also measures for the Safety of the students"** in the Chemistry laboratories of our college.

## I. REDUCE:

- We have taken steps for minimizing the usage of Chemicals and Reagents in the day to day practicals by implementing the following alternative approaches.
- In preparing derivatives and preparations only minimal quantities of reactants are taken. This also reduces the requirement of reagents and also the consumption of fuel.
- We are encouraging our students to use 5 ml test tubes in place of conventional 20 ml test tubes while doing qualitative Organic or Inorganic analysis.

## II. REUSE:

- We are collecting separately and reusing the preparations /derivatives prepared by a class of students, by giving them as sample for the qualitative detection of functional groups or Cation/Anions.
- We are collecting the left over volumetric analysis solutions from a batch of students and reusing them for next batch of students.
- We are collecting the left over chemical in Organic or Inorganic analysis in separately labeled bottles from a batch and reusing these Chemicals for the next batch of students.

## III. RE-CYCLE:

- Even old stock of Chemical is also used at least for qualitative determinations and no Chemical is discarded as trash.
- No bottle with Chemical is thrown out inside the college campus.
- The empty plastic/glass containers and broken glassware are sent to local re-cycling units.

## IV. SAFE DISPOSAL OF CHEMICAL WASTES:

- The sinks are regularly cleaned to facilitate quick drainage of Chemicals from the lab.
- Students are strictly instructed not to drain Chemicals in „Red List". Ex:
  a. Compounds of the following elements:- antimony, arsenic, barium, beryllium, boron,
  b. Cadmium, chromium, cobalt, copper, lead, mercury, molybdenum, nickel, selenium,
  c. Silver, tellurium, thallium, tin, titanium, uranium, vanadium and zinc.
  d. Organohalogen, organophosphorus or organonitrogen pesticides, triazine
  e. Herbicides, any other biocides.
- The waste acid/alkaline solutions are collected in separately labeled bottles and these solutions are neutralized before letting them through the sink.
- The filter papers and other solid wastes collected from Chemistry labs are being dumped into a pit dug in a secluded place in the vicinity of Chemistry labs, for it to undergo biodegradation.

## V. INITIATIVES TAKEN FOR SAFETY OF STUDENTS:

- We made it mandatory for every student to wear apron in the laboratory.
- A „First Aid Box" with required medicines is kept available in the Chemistry laboratory..
- A „Fire Extinguisher is fixed in each of the two laboratories.
- **"Lab Safety Rules"** are written with paint on the inner walls of the two Chemistry Laboratories.

## Solid Waste Management:

As a part of the policy**(Reduce, Recycle and Reuse-3R's Policy)** adopted by the college**,** the department of Zoology collected the waste material in college and segregated into biodegradable and non-biodegradable wastes. Vegetable waste and fruit peelings are collected from the canteen and utilized for Vermicompost and Vermi-wash which in turn used for organic farming as biofertilizer

- Vermi-composting is a method of preparing enriched compost with the use of earthworms. It is one of the easiest methods to recycle agricultural wastes and to produce quality compost. Earthworms consume biomass and excrete it in digested form called **worm casts.** Worm casts are popularly called as **Black gold.** The casts are rich in nutrients, growth promoting substances, beneficial soil micro flora and having properties of inhibiting pathogenic microbes.
- **Vermi-wash** is a liquid biofertilizer released from earthworms which can be used for the foliage of plants.

**4. e – Waste Management**

In recent years the general usage of Computers, Computer accessories, CDs, DVDs, speakers, mouse, key boards, spikes, Air conditioners, spectrophotometers, digital appliances and other electronic devices and so on has enormously increased. It is quite natural that any electronic device works only for a stipulated period and after that it becomes unusable and irreparable. All such unusable electronic devices and their accessories are categorized as "E – waste". The main problem with E – waste is the problem of space. Storing becomes impossible when their quantity increases to unmanageable level. Hence their disposal becomes mandatory. But the aspect of boon is being that E – wastes could be put to re-cycling.

## Conclusion

Thus through the "Green Audit" of the college campus, the following objectives get full filled.

- The information about the wide range of varieties of Plant kingdom being grown inthe college campus.
- Provides information on the extent of percentage of vegetation in the college campus.
- It provides information about the soil fertility and purity of water being used both in college and in canteen.
- The procedures adopted so as to keep college campus free from solid waste and their profitable management.
- Profitable management of e – waste by sending it for re-cycling.

# List of Plants present in the College campus

| Name | Family | Habit | Common name | Age | Number | Type |
|---|---|---|---|---|---|---|
| **Abution indicum** | **Malvaceae** | **S** | **Tutturu benda** | **1** | **5** | **Medicin al** |
| **Acalypha indica** | **Euphorbiaceae** | **H** | **Kuppinta, Muripinda** | **1** | **Many** | **Medicinal** |
| **Achras zapota** | **Sapotaceae** | **T** | **Sapota** | **6 Y** | **2** | **Medicinal** |
| *Adenium obesum* | Apocynaceae | S | Adenium | 2 | 3 | Ornamental |
| *Alocasia macrorhizos* | Araceae | H | Giant Taro | 5 Y | 8 | Ornamental |
| Aerva lanata | Amaranthaceae | H | Konda pindi | 1 | Many | Medicinal |
| Allamanda cathartica | Apocynaceae | CS | Trumpet flower | 2 | 5 | Ornamental |
| Aloe vera | Liliaceae | H | Kala banda | 3 | 5 | Medicinal |
| Alternanthera sessilis | Amaranthaceae | H | Joy weed | 2 Y | 36 | Ornamental |
| Anthocephalus cadamba | Rubiaceae | T | Kadamba | 6 Y | 5 | Medicinal |
| Araucaria heterophylla | Araucariaceae | T | Monkey Puzzle tree | 4 Y | 3 | Ornamental |
| Areca catechu | Arecaceae | T | Areca nut | 6 Y | 5 | Ornamental |
| Azadirachta indica | Meliaceae | T | Vepa | 10 Y | 10 | Medicinal |
| Bauhinia purpurea | Leguminasae | T | Deva Kanchanam | 5 Y | 9 | Medicinal |
| Boerhavia diffusa | Nictaginaceae | H | Atika mamidi | 1 Y | 10 | Medicinal |
| Bryophyllam | Crassulaceae | H | Rana pala | 2 Y | 2 | Ornamental |
| Caladium bicolor | Araceae | H | Elephant year | 2 Y | 15 | Ornamental |
| Calotropis procera | Asclepiadaceae | S | Jilledu | 5Y | 2 | Medicinal |
| Canna indica | Cannaceae | H | Metta tamara | 5 Y | 150 | Ornamental |
| Carica papaya | Caricaceae | T | Boppayi | 3 Y | 2 | Medicinal |
| Cassia oocidentalis | Caesalpinaceae | S | Kasi vinda | 1 Y | 2 | Medicinal |
| Catharanthus roseus | Apocynaceae | H | Billa Ganneru | 1Y | 25 | Medicinal |

| | | | | | | |
|---|---|---|---|---|---|---|
| Chrysanthemum indicum | Asteraceae | H | Chemanti | 1Y | 10 | Ornamental |
| Clitoria ternatea | Leguminasae | H | Shanku poolu | 2Y | 15 | Medicinal |
| Cocos nucifera | Arecaceae | T | Coconut tree | 6 Y | 5 | Food |
| Codium variegatum | Euphorbiaceae | S | Croton plant | 2 Y | 9 | Ornamental |
| Crosandra infundibuliformis | Acantaceae | H | Kanakambaralu | 1 Y | 10 | Ornamental |
| Costus speciosus | Costaceae | H | Insulin Plant | 1 Y | 25 | Medicinal |
| Cycus beddomi | Cycadaceae | T | Cycas | 6 Y | 1 | Ornamental |
| Dalbergia sissoo | Fabaceae | T | Rose wood | 6 Y | 1 | Timber |
| Datura metal | Solanaceae | S | Ummetta | 2 Y | 4 | Medicinal |
| Delonix regia | Leguminasae | T | Thurayi | 5 Y | 2 | Ornamental |
| Dieffenbachia seguine | Araceeae | H | Dumb Cane | 3 Y | 10 | Ornamental |
| Dracaena species | Asparagaceae | H | Dracaena | 4 Y | 10 | Ornamental |
| Duranta repens | Verbenaceae | S | Duranta | 1 | 200 | Ornamental |
| Enterolobium saman | Mimosaceae | T | Rain tree | 20 Y | 1 | Ornamental |
| Epipremnum aureum | Araceeae | H | Celon creeper | 4 Y | 5 | ornamental |
| Euphorbia hirta | Euphorbiaceae | H | Reddi vari nanu bau | 1 | 5 | Medicinal |
| Ficus benghalensis | Moraceae | T | Banyan tree | 6 Y | 1 | Tree |
| Ficus benjamina | Moraceae | T | Pedda juvvi | 6 Y | 5 | Ornamental |
| Hibiscus rosa-sinensis | Malvaceae | S | Mandara | 5Y | 10 | Ornamental |
| Heliotropium indicum | Boraginaceae | H | Telumani | 1 Y | 4 | Medicinal |
| Ixora coccinia | Rubiaceae | S | Rama banam | 5 Y | 2 | Ornamental |
| Jasminum sambac | Oleaceae | S | Malle poolu | 4Y | 1 | Ornamental |
| Mangifera indica | Anacardiaceae | T | Mango | 5 Y | 6 | Food |
| Millingtonia arvensis | Bignoniaceae | T | Rama bhanam | 15 Y | 2 | Ornamental |
| Myrabilis jalapa | Nictaginaceae | H | 4 O Clock plant | 2Y | 5 | Ornamental |

| | | | | | | |
|---|---|---|---|---|---|---|
| Moringa oleifera | Moringaceae | T | Munaga | 5 | 5 | Medicinal |
| Momordica charantia | Cucurbitaceae | H | Bitter gourd | 1 Y | 5 | Medicinal |
| Murraya koenigi | Rutaceae | T | Curry leaf | 3 Y | 4 | M edicinal |
| Musa paradisiaca | Musaceae | H | Banana | 3 Y | 15 | Food |
| Nerium odorum | Apocynaceae | S | Ganneru | 4 Y | 5 | Ornamental |
| Nyctanthus arboristris | Nictaginaceae | S | Parijatam | 4 Y | 2 | Ornamental |
| Ocimum basilicum | Lamiaceae | H | Rudra jada | 1 Y | 2 | M edicinal |
| Ocimum sanctum | Lamiaceae | H | Tulasi | 2 Y | 6 | Medicinal |
| Oldenlandia umbellata | Rubiaceae | H | Chay root | 1 Y | 100 | Medicinal |
| Phyllanthus neruri | Euphorbiaceae | H | Nela Usiri | 5 Y | 50 | Medicinal |
| Physalis minima | Solanceae | H | Budda budasa | 2 Y | 6 | Medicinal |
| Piper betel | Pipaeraceae | H | Betel leaf | 2 Y | 5 | Medicinal |
| Polyalthia longifolia | Annonaceeae | T | Nara mamidi | 20 Y | 5 | Ornamental |
| Pongamia pinnata | Fabaceae | T | Ganuga | 15 Y | 9 | Medicinal |
| Plectranthus ambonicus | Apiaceae | H | Karpooravalli | 1 Y | 5 | Medicinal |
| Psidium guajava | Myrtaceae | T | Jama | 2 Y | 2 | Food |
| Salvia splendens | Lamiaceae | S | Sage plant | 6 Y | 2 | Ornamental |
| Syzygium zambolina | Myrtaceae | T | Zambo Neredu | 15 Y | 5 | Medicinal |
| Tecoma stans | Bignoniaceae | S | Trumpet vine | 2 Y | 2 | Ornamental |
| Tectona grandis | Verbenaceae | T | Teak | 12 Y | 4 | Timber |
| Terminalia catappa | Combretaceae | T | Badam Almond | 6 Y | 8 | Ornamental |

| | | | | | | |
|---|---|---|---|---|---|---|
| Thespecia populnea | Malvaceae | T | Ganga ravi | 10 Y | 1 | Ornamental |
| Thuja occidentalis | Cupressaceae | S | Thuja | 1 Y | 5 | Ornamental |
| Tinospora sinensis | Menispermaceae | H | Guduchi | 1Y | 2 | Medicinal |
| Tradescantia spathacea | Commelinaceae | H | Oyster plant | 2 Y | 45 | Ornamental |
| Vernonia cinera | Asteraceae | H | Sahadevi | 1 Y | Many | Ornamental |
| Ziziphus jujuba | Rhamnaceae | T | Regu | 2Y | 5 | Food |
| | | | | | | |

# ENERGY AUDIT

## SAVE ENERGY

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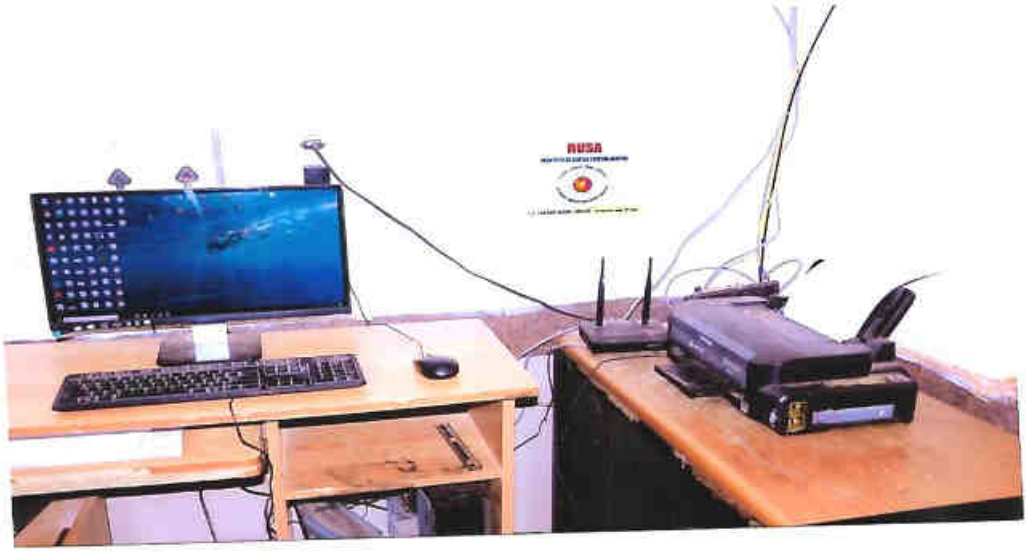
# ALTERNATIVE ENERGY SOURCES


RUSA

# ALTERNATIVE ENERGY SOURCES

# SOLAR ENERGY PRODUCED IN THE COLLEGE

## ENERGY CONSERVATION INITIATIVES

| ENERGY USED AND SOLAR ENERGY PRODUCED STATEMENT OF THE COLLEGE | | | | | |
|---|---|---|---|---|---|
| SL.NO. | DATE OF THE BILL | TOTAL ELECTRICITY USED (In Units) | SOLAR ENERGY PRODUCED IN THE COLLEGE (In Units) | PERCENTAGE OF SOLAR ENEGY OF THE COLLEGE IN TOTAL ELECTRICITY USAGE | REMARKS |
| 1 | 08-04-2019 | 341 | 218 | | |
| 2 | 11-06-2019 | 888 | 872 | | |
| 3 | 15-07-2019 | 1054 | 328 | | |
| 4 | 16-09-2019 | 649 | 78 | | |
| 5 | 14-10-2019 | 1046 | 118 | | |
| 6 | 15-11-2019 | 760 | 142 | | |
| 2019 Total Average usage | | 4738 | 1756 | 37.06 % | 37 % Eco friendly in 2019 |
| 7 | 11-02-2020 | 706 | 159 | | |
| 8 | 11-03-2020 | 603 | 13 | | |
| 9 | 06-04-2020 | 608 | 13 | | |
| 10 | 11-07-2020 | 1710 | 1485 | | |
| 11 | 06-08-2020 | 179 | 278 | | |
| 12 | 08-09-2020 | 395 | 288 | | |
| 13 | 06-10-2020 | 509 | 101 | | |
| 2020 Total Average usage | | 4710 | 2337 | 49.6% | 49.6 % Eco friendly in 2020 |
| 14 | 13 - -04 – 2022 | 931 | 240 | | |
| 15 | 31 – 05 – 2022 | 735 | 110 | | |
| 16 | 07 – 06 – 2022 | 545 | 413 | | |
| 17 | 08 – 07 – 2022 | 575 | 253 | | |
| 18 | 06 – 08 – 2022 | 591 | 181 | | |
| 19 | 05 – 09 – 2022 | 648 | 215 | | |
| 2022 Total Average usage | | 4025 | 1412 | 35.08 % | 35 % Eco friendly in 2022 |


# ENVIRONMENTAL AUDIT

1. AIR AUDIT
2. WATER AUDIT
3. SOIL AUDIT

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# WATER AUDIT


ఆంధ్ర ప్రదేశ్ ప్రభుత్వము
కార్యాలయము


ఆంధ్ర ప్రదేశ్ ప్రభుత్వము
తాగునీటి విశ్లేషణ ప్రయోగశాల


ఆంధ్ర ప్రదేశ్ ప్రభుత్వము
తాగునీటి విశ్లేషణ ప్రయోగశాల

**GOVERNMENT OF ANDHRA PRADESH**
**RURAL WATER SUPPLY AND SANITATION DEPARTMENT**
**CHEMICAL ANALYSIS OF WATER REPORT**

RURAL WATER SUPPLY DEPARTMENT
SUB-DIVISIONALWATER TESTING LABORATORY
OFFICE OF THE DY.EXECUTIVE ENGINEER,YELLAMANCHILLI ,VISAKHAPATNAM DISTRICT.
REPORT ON BACTERIOLOGICAL ANALYSIS OF DRINKING WATER SAMPLE.

| S.No | Collection Date | Mandal | Panchayat | Habitation | Location | Source | Positive/ Negative | MPN of Coliform Bacteria/ 100ml. | Plate count Reading E.Coli sp. | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 28-Sep-22 | YELAMANCHILI | YELAMANCHILI | YELAMANCHILI | SGA GOVERNMENT DEGREE COLLEGE | RO WATER | NEGATIVE | <2 | 0 | BACTERIOLOGICAL SAFE. POTABLE FOR DRINKING PURPOSE. |

MicroBiologist,
W.Q.M.Lab,
Rws&s , Yellamanchili sub division.

R.W.S. O/o Deputy Executive Engineer Yelamanchili

REPORT: RO Water collected from the College Bore Water and RO water given to water testing department. i.e. The Rural water supply Department, Govt. of Andhra Pradesh. Theyperformed the following tests.
Qualitative tests like – Smell, Colour, turbidity, PH electrical conductivity
Volumetric Analysis – Total dissolved solids, Alkalinity, Total hardness of water, Calcium, Magnesium, Chloride, Fluoride, Nitrate, Sulphate, Iron, Sodium, Potassium.

**GOVERNMENT OF ANDHRA PRADESH**
**RURAL WATER SUPPLY AND SANITATION DEPARTMENT**
**CHEMICAL ANALYSIS OF WATER REPORT**

RURAL WATER SUPPLY DEPARTMENT
SUB-DIVISIONALWATER TESTING LABORATORY
OFFICE OF THE DY.EXECUTIVE ENGINEER, YELLAMANCHILLI ,VISAKHAPATNAM DISTRICT.
REPORT ON CHEMEICAL ANALYSIS OF WATER(DRINKING) SAMPLE.

| S.No | MANDAL | G.P | LOCATION | SOURCE | Collection Date | TURBIDITY | Ph (6.5-8.5) | E.C | TDS (500-2000) | Alkalinity (200-600) as | TotalHardness (300-600) as | CALCIUM (75-200)MG/LT | MEGNECIUM (30-100) | Chlorides (250-1000) | Fluorides (1-1.5) | Nitrate (40-45) as | Sulphate (200-400) as | Iron (0.1-1.0) as | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | CaCo3 | CaCo3 | ca. | mg. | as Cl | as F | No3 | So4 | Fe | |
| 1 | YELAMANCHILI | YELAMANCHILI | SGA GOVERNMENT DEGREE COLLEGE | RO WATER | 28-Sep-22 | 0 | 7.32 | 73 | 47 | 8 | 12 | 3 | 1 | 21 | 0.04 | 4.2 | 2 | 0.02 | CHEMICALLY SAFE. POTABLE FOR DRINKING PURPOSE. |

Lab Chemist,/MicroBiologist
WQM Lab,
Yellamanchilli.

R.W.S. O/o Deputy Executive Engineer Yelamanchili

REPORT: RO Water collected from the College Bore Water and RO water given to water testing department. i.e. The Rural water supply Department, Govt. of Andhra Pradesh. Theyperformed the following tests.
Qualitative tests like – Smell, Colour, turbidity, PH electrical conductivity
Volumetric Analysis – Total dissolved solids, Alkalinity, Total hardness of water, Calcium, Magnesium, Chloride, Fluoride, Nitrate, Sulphate, Iron, Sodium, Potassium.

DRINKING WATER STANDARDS

| PARAMETER | UNIT | LIMIT |
|---|---|---|
| Aluminium | mg Al/l | 0.2 |
| Arsenic | mg As/l | 0.05 |
| Barium | mg Ba/l | 0.05 |
| Berylium | ug Be/l | 0.2 |
| Cadmium | ug Cd/l | 5.0 |
| Calcium | mg Ca/l | 200.0 |
| Chromium | mg Cr/l | 0.05 |
| Copper | mg Cu/l | 1.0 |
| Iron Total | mg Fe/l | 0.3 |
| Lead | mg Pb/l | 0.01 |
| Magnesium | mg Mg/l | 150.0 |
| Manganese | mg Mn/l | 0.1 |
| Mercury | ug Hg/l | 1.0 |
| Selenium | mg Se/l | 0.01 |
| Sodium | mg Na/l | 200.0 |
| Zinc | mg Zn/l | 5.0 |
| Chlorides | mg Cl/l | 250.0 |
| Cyanide | mg Cn/l | 0.1 |
| Fluorides | mg F/l | 1.5 |
| Nitrates | mg $NO_3$/l | 10.0 |
| Nitrites | mg $NO_2$/l | - |
| Sulphates | mg $SO_4$/l | 400.0 |
| Suphides | mg $H_2S$/l | 0 |
| TOTAL "drins" | ug/l | 0.03 |
| TOTAL "ddt" | ug/l | 1.0 |
| Hydrocarbons | mg/l | 0.1 |
| Anionic Detergents | mg/l | 0 |
| pH | | 9.2 |
| Total dissolved solids | mg/l | 1500 |
| Total hardness | mg/l | 500 |
| Alkalinity | mg/l | 500 |
| MICROBIOLOGICAL PARAMETERS | | |
| Total Bacteria | Count/ml | 100 |
| Coliform | Count/100ml | 0 |
| E. Coli | Count/100ml | 0 |
| Salmonella | Count/100ml | 0 |

**Water conservation**

**Rain water harvesting structures and utilization in the campus**
**Response:**
**Rainwater harvesting structures**
The SGA Government Degree College, Yellamanchili believes in the quote "the running water should be made to walk and the walking water should be made to crawl and the crawling water should be made to stand" and takes all possible measures to preserve the rain water. The institution has a built in roof water harvesting and flood water management through percolation pits. These pits are useful for garden watering as an alternative to fresh water. There are several other benefits such as providing back up source of water, reducing erosion of ground, flooding around the building and raising the water table. The main advantage of these percolation pits is that it requires low upfront capital investment and they are easy to maintain. The college is situated in a low lying area with elevated roads and residential areas around. As such, every drop of water running down the uplands is likely to flow into the college ground. Especially, during the rainy season, a lot of rain water floods the campus from all directions. Percolation pits were successfully found to be one of the simplest and most effective means of harvesting rainwater.
**Percolation Pits**
The institution with the help of volunteers from NSS and NCC and members of alumni, has been digging the 3 large percolation pits at crucial points in the college. They are designed on the basis of expected gravitational runoff with rocks or block jam and stream sand, secured with punctured solid pieces wherever essential. The percolation pits measure 6 X 6 X 6 ft. and can store 692631 cu.mts. amount of water. Small water help the stray water into the nearest percolation pit. Adequate measures are taken to seal the openings so as to prevent students and animals to slip into them. Every rainy season, maintenance is undertaken by student volunteers both to clean the lead channels and to remove the silt from the bottom of the tanks so as to keep the storage capacity intact.
**Roof Water Harvesting:**
The SGA Government Degree College, Yellamanchili is operating in 5 large buildings with a huge roof top space. This provides an opportunity to harvest a lot of rain water flowing down the roofs. All the rain water is made to collect and flow down. This water is brought down through pipe lines and connected to percolation pits. The Chemistry department also utilizes the roof water for some of its lab purposes.

**Green campus initiatives**

**Green Practices**

- **Students, staff using**
  - **a) Bicycles**
  - **b) Public Transport**
  - **c) Pedestrian friendly roads**
- **Plastic-free campus**
- **Paperless office**
- **Green landscaping with trees and plants**

GREEN CAMPUS INITIATIVE
Vermi compost initiative

PLANTATION ON BIRTH DAYS ---- EACH ONE - PLANT ONE INITIATIVE
Clean and Green programmes by NSS
Green day on every Saturday
No vehicle in campus initiative.
IMPORTANCE OF Usage of Public transport system
Awareness on minimal usage of natural resources.
Over head tank alarm and indicator .
Plant adaption prograamme in campus.

The college practices the campus sustainability initiative as the aim of promoting environment awareness among the students as a part of education. our aim is to turn out into a SWACCH CAMPUS. .

Green practices observed include:

Energy
Water
Travel and Transport
Biodiversity
Waste

1.**Cycles and Public Transport:** Most of the students hailing from a distance of 3 to 7 Kilometers use bicycles as it is not only an eco friendly but also economical exercise for the body. Among the remaining ¼, another 80% students come from villages about 20 - 25 Kms away from the college. These students travel up and down using public transport. They use the state run AP State Road Transport Corporation bus facility granted to the students by the State Government with initiative from the college. Of the 70 members teaching faculty coming from far, use cycles or the public transport.

2.**Vehicle Free Day**: Every Saturday of the week is observed as Vehicle free day and no vehicle is permitted to enter the campus on that day.

3.**Pedestrian Friendly Roads**: The institution has a sprawling campus of 06 acres. The Departments are connected with 20 feet wide pedestrian friendly roads with in the campus. These roads with green plants give pleasant atmosphere for the students.

4.**Plastic Free Campus:** The college has been made plastic free. Students are instructed not to bring plastics and polythene bags into the campus. The plastics if found are collected and disposed.

**Paperless Office:** The administration block and the examination block of the college have been completely automated. Dynamic college website hosts all required information. The entire admission process is automated. The pay bills of the teaching staff are also computerized. The resolutions of Staff Council meetings are also communicated by e-mails and WhatsApp. Short notices and communications are conveyed using the public address system.

6.**Green Landscaping**: The College is not only eco-friendly but has greenery. Landscaping in the college has been given top priority. Plantation is being undertaken regularly.

7.**Green Energy**: The College has set up a **50** KWP grid tied Solar Power Plant is installed at the top of the Arts block. This has drastically reduced the dependence on conventional energy. Further, all the old electric bulbs are replaced with LED bulbs both to save power and also to make the campus eco-friendly.

8.**Effective Waste Management**: The solid, wet, liquid and e-wastes in the college have been well taken care of. The solid wastes are processed and recycled to generate Vermi Compost. Efforts are taken that very little liquid waste is released from laboratories. The waste water from the RO Plants is redirected to garden plants. E-waste is periodically collected and disposed to Andhra Pradesh Technology Services Ltd, Government of Andhra Pradesh.

**Disabled friendly, barrier free environment**

**Differently abled (Divyangjan) Friendliness Resources available in the institution:**

1. **Physical facilities**
2. **Ramp / Rails**
3. **Rest Rooms**
4. **Scribes for examination**
5. **Special skill development for differently abled students**

Wheel chair facility
Ramps facility for disabled students
Disabled friendly toilets
Rest room for women students

# SOIL AUDIT


SOIL TESTING LABORATORY
OFFICE OF THE
DEPUTY DIRECTOR AGRICULTURE
FARMER'S TRAINING CENTRE
GOVERNMENT OF ANDHRA PRADESH
DEPARTMENT OF AGRICULTURE
RBK
DISTRICT RESOURCE CENTRE
ANAKAPALLI - DISTRICT




The faculty of the college visited the RWIC to get the analysis water report on drinking water in the college.

# భూసార పరీక్షా ఫలితాలు

**భూసార పరీక్షా కేంద్రము - అనకాపల్లి.**

నమూనా నెం.....

తేది : 21/10/20

రైతు పేరు P. chandra Sekhar తండ్రి పేరు .....

గ్రామము Yelamanchille మండలము Yelamanchille సర్వే నెం..... విశాఖపట్నం జిల్లా

| | | | | |
|---|---|---|---|---|
| నేల స్వభావము | ( sl ) | తేలిక నేలలు | మధ్యరకం నేలలు | బరువు నేలలు |
| ఆమ్లక్షార లక్షణము | ( 7.3 ) | ఆమ్లము | తటస్థము | అల్ప/మధ్య/అధిక క్షారము |
| లవణ సాంద్రత మి.మో./ సెం.మీ. | ( 0.08 ) | సామాన్యం | మొలకెత్తుట కష్టం | పంటకు హాని |
| సేంద్రియ కర్బనము | ( L ) | తక్కువ | మధ్యస్థము | ఎక్కువ |
| లభ్య నత్రజని కి॥ గ్రా॥/ ఎకరం | ( — ) | తక్కువ | మధ్యస్థము | ఎక్కువ |
| లభ్య భాస్వరము కి॥ గ్రా॥/ ఎకరం | ( 24 ) | తక్కువ | మధ్యస్థము | ఎక్కువ |
| లభ్య పొటాష్ కి॥ గ్రా / ఎకరం | ( 74 ) | తక్కువ | మధ్యస్థము | ఎక్కువ |
| నీటి వివరములు | ( ) | నీటి వనరుల క్రింద | వర్షాధారము | నూతుల క్రింద |
| భూ వివరములు | ( ) | మెట్టు | మెట్టు / పల్లం | పల్లం |
| సూక్ష్మపోషకాల లభ్యత | | | | |
| లభ్యమగు జింకు | | | | |
| లభ్యమగు ఇనుము | | | | |
| లభ్యమగు మాంగనీసు | | | | |
| లభ్యమగు రాగి | | | | |

## ఖరీఫ్ / రబీలో సిఫారసు చేయబడిన ఎరువుల మోతాదు కి.గ్రా / ఎకరానికి

| వ.నెం. | పంట | పంట గెత్తం (ట) | నత్రజని యూరియా (Kg) | భాస్వరం SSP (Kg) | పొటాష్ MOP (Kg) | జిప్సం / సున్నం టన్నులు / కేజీలు ఎకరాకు |
|---|---|---|---|---|---|---|
| 1. | | | | | | |
| 2. | | | | | | |
| 3. | | | | | | |

Soil Analysis Report

(2)

# భూసార పరీక్షా ఫలితాలు

**భూసార పరీక్షా కేంద్రము - అనకాపల్లి.**

నమూనా నెం. ..... తేది :..21/10/14.....

రైతు పేరు P. Chandra Sekhar..... తండ్రి పేరు .....

గ్రామము Yelamanchili..... మండలము Yelamanchili..... సర్వే నెం..... విశాఖపట్నం జిల్లా

| | | | | |
|---|---|---|---|---|
| నేల స్వభావము | ( AL ) | ✓ తేలిక నేలలు | మధ్యరకం నేలలు | బరువు నేలలు |
| ఆమ్లక్షార లక్షణము | ( 7.8 ) | ఆమ్లము | తటస్థము | ✓ అల్ప/మధ్య/అధిక క్షారము |
| లవణ సాంద్రత మి.మో./ సెం.మీ. | ( 0.06 ) | ✓ సామాన్యం | మొలకెత్తుట కష్టం | పంటకు హాని |
| సేంద్రియ కర్బనము | ( L ) | ✓ తక్కువ | మధ్యస్థము | ఎక్కువ |
| లభ్య నత్రజని కి॥ గ్రా॥/ ఎకరం | ( – ) | తక్కువ | మధ్యస్థము | ఎక్కువ |
| లభ్య భాస్వరము కి॥ గ్రా॥/ ఎకరం | ( 38 ) | తక్కువ | మధ్యస్థము | ✓ ఎక్కువ |
| లభ్య పొటాష్ కి॥ గ్రా / ఎకరం | ( 69 ) | తక్కువ | ✓ మధ్యస్థము | ఎక్కువ |
| నీటి వివరములు | ( ) | నీటి వనరుల క్రింద | వర్షాధారము | నూతుల క్రింద |
| భూ వివరములు | ( ) | ✓ మెట్టు | మెట్టు / పల్లం | పల్లం |
| సూక్ష్మపోషకాల లభ్యత | | | | |
| లభ్యమగు జింకు | | | | |
| లభ్యమగు ఇనుము | | | | |
| లభ్యమగు మాంగనీసు | | | | |
| లభ్యమగు రాగి | | | | |

## ఖరీఫ్ / రబీలో సిఫారసు చేయబడిన ఎరువుల మోతాదు కి.గ్రా / ఎకరానికి

| వ.నెం. | పంట | పెంట గెత్తం (ట) | నత్రజని యూరియా (Kg) | భాస్వరం SSP (Kg) | పొటాష్ MOP (Kg) | జిప్సం / సున్నం బస్తాలు / కేజీలు ఎకరాకు |
|---|---|---|---|---|---|---|
| 1. | | | | | | |
| 2. | | | | | | |
| 3. | | | | | | |


ఎబ్బలి పరీక్షా కేంద్రం

# భూసార పరీక్షా ఫలితాలు

## భూసార పరీక్షా కేంద్రము - అనకాపల్లి.

నమూనా నెం. ..... తేది : 21/10/20

రైతు పేరు P. chandrika Sekhar తండ్రి పేరు .....

గ్రామము Yelamanchilli మండలము Yelamanchilli సర్వే నెం. ..... విశాఖపట్నం జిల్లా

| | | | | |
|---|---|---|---|---|
| నేల స్వభావము | ( sl ) | తేలిక నేలలు | మధ్యరకం నేలలు | బరువు నేలలు |
| ఆమ్లక్షార లక్షణము | ( 7.3 ) | ఆమ్లము | తటస్థము | అల్ప/మధ్య/అధిక క్షారము |
| లవణ సాంద్రత మి.మో./ సెం.మీ. | ( 0.08 ) | సామాన్యం | మొలకెత్తుట కష్టం | పంటకు హాని |
| సేంద్రియ కర్బనము | ( L ) | తక్కువ | మధ్యస్థము | ఎక్కువ |
| లభ్య నత్రజని కి॥ గ్రా॥/ ఎకరం | ( — ) | తక్కువ | మధ్యస్థము | ఎక్కువ |
| లభ్య భాస్వరము కి॥ గ్రా॥/ ఎకరం | ( 24 ) | తక్కువ | మధ్యస్థము | ఎక్కువ |
| లభ్య పొటాష్ కి॥ గ్రా / ఎకరం | ( 74 ) | తక్కువ | మధ్యస్థము | ఎక్కువ |
| నీటి వివరములు | ( ) | నీటి వనరుల క్రింద | వర్షాధారము | నూతుల క్రింద |
| భూ వివరములు | ( ) | మెట్టు | మెట్టు / పల్లం | పల్లం |
| **సూక్ష్మపోషకాల లభ్యత** | | | | |
| లభ్యమగు జింకు | | | | |
| లభ్యమగు ఇనుము | | | | |
| లభ్యమగు మాంగనీసు | | | | |
| లభ్యమగు రాగి | | | | |

## ఖరీఫ్ / రబీలో సిఫారసు చేయబడిన ఎరువుల మోతాదు కి.గ్రా / ఎకరానికి

| వ.నెం. | పంట | పెంట గెత్తం (ట) | నత్రజని యూరియా (Kg) | భాస్వరం SSP (Kg) | పొటాష్ MOP (Kg) | జిప్సం / సున్నం టన్నులు / కేజీలు ఎకరాకు |
|---|---|---|---|---|---|---|
| 1. | | | | | | |
| 2. | | | | | | |
| 3. | | | | | | |

(2)

# భూసార పరీక్షా ఫలితాలు

**భూసార పరీక్షా కేంద్రము - అనకాపల్లి.**

నమూనా నెం. ..... తేది :21/10/14

రైతు పేరు P. Chandra Sekhar తండ్రి పేరు .....

గ్రామము Yelamanchili మండలము Yelamanchili సర్వే నెం. ..... విశాఖపట్నం జిల్లా

| | | | | |
|---|---|---|---|---|
| నేల స్వభావము | ( AL ) | ఆమ్లక నేలలు | మధ్యరకం నేలలు | ఐరువు నేలలు |
| ఆమ్లక్షార లక్షణము | ( 7.8 ) | ఆమ్లము | తటస్థము | అల్ప/మధ్య/అధిక క్షారము |
| లవణ సాంద్రత మి.మో./ సెం.మీ. | ( 0.06 ) | సామాన్యం | మొలకెత్తుట కష్టం | పంటకు హాని |
| సేంద్రియ కర్బనము | ( L ) | తక్కువ | మధ్యస్థము | ఎక్కువ |
| లభ్య నత్రజని కి॥ గ్రా॥/ ఎకరం | ( - ) | తక్కువ | మధ్యస్థము | ఎక్కువ |
| లభ్య భాస్వరము కి॥ గ్రా॥/ ఎకరం | ( 38 ) | తక్కువ | మధ్యస్థము | ఎక్కువ |
| లభ్య పొటాష్ కి॥ గ్రా / ఎకరం | ( 69 ) | తక్కువ | మధ్యస్థము | ఎక్కువ |
| నీటి వివరములు | ( ) | నీటి వనరుల క్రింద | వర్షాధారము | నూతుల క్రింద |
| భూ వివరములు | ( ) | ఒట్టు | మెట్టు / పల్లం | పల్లం |
| సూక్ష్మపోషకాల లభ్యత | | | | |
| లభ్యమగు జింకు | | | | |
| లభ్యమగు ఇనుము | | | | |
| లభ్యమగు మాంగనీసు | | | | |
| లభ్యమగు రాగి | | | | |

## ఖరీఫ్/రబీలో సిఫారసు చేయబడిన ఎరువుల మోతాదు కి.గ్రా/ఎకరానికి

| వ.నెం. | పంట | పెంట గెత్తం (ట) | నత్రజని యూరియా (Kg) | భాస్వరం SSP (Kg) | పొటాష్ MOP (Kg) | జిప్సం / సున్నం టన్నులు / కేజీలు ఎకరాకు |
|---|---|---|---|---|---|---|
| 1. | | | | | | |
| 2. | | | | | | |
| 3. | | | | | | |

**Management of the various types of degradable and non degradable waste**

**Waste Management steps including:**

# Clean and Green Campus Initiatives

# &

# Beyond the campus environmental promotion activities

- **Solid waste management**
- **Liquid waste management**
- **E-waste management**

**Bio degradable waste management ---**

Food waste to prepare vermi compost
Wealth from waste – solid waste to prepare vermi compost

**Non bio degradable wastes ---**

Awareness on ban of plastic.
Awareness on the bad implications of the usage of plastic on human health and global health.
Assignments on non biodegradable wastes and its implications and solutions
Reduce, Reuse, recycling programme.

**Response:**

The College considers sustainability promotion as an essential component of education apart from the basic teaching and learning. Waste management is one of the prime concerns of the institution. This institution has a permanent mechanism for eliminating or minimizing the wastage on the campus, be it of time, power, paper, or water. However, where wastage is inevitable and unavoidable, it is managed quite effectively. It is either deposited safely or recycled successfully for the benefit of nature and community.

Mainly, the institution manages three types of wastes.

**Solid Waste Management:**

The main Solid wastes on the campus include waste paper and disposables. Students are created awareness in this regard through orientation classes and by arranging signboards in important locations. Measures are being taken for safe disposal in a planned manner by separating into biodegradable and non-degradable materials. The biodegradable waste is shifted to the Vermi-Compost unit maintained by the Departments of Zoology and Botany. This in turn is used for development of Botanical gardens and lawns in the college.

Proposals are under way to start a paper recycling unit to generate covers and other reusable materials. The non-degradable wastes are separated into recyclable and disposable ones. Plastics, glass and scrap metal wastes are collected and sold or deposited periodically into pits.

**Liquid Waste Management:**

Liquid and semi-liquid wastes are safely channeled into sealed tanks and are disposed periodically. The liquid chemical waste coming out of the laboratories is neutralized and disposed safely. The waste water generated by RO Plants is being channelized into college garden to grow banana grove and a number of fruit bearing and flowering plants.

The college is situated in a low lying area with elevated roads and residential areas around. As such, every drop of water running down the uplands is likely to flow into the college ground. Especially, during the rainy season, a lot of rain water floods the campus from all
directions. To hold and absorb this running water, the students of NSS and NCC have dug a number of Recharge pits/rainwater harvesting pits at all pivotal points in the college and store the water. This water helps to raise the level of water table for the bore-wells in the college and surrounding areas.

**E-waste Management:**

Not much e-waste is generated in the institution on a daily basis. The electronic waste in the college includes discarded electrical or electronic devices such as used electronic parts, burned electric bulbs, wires, computer peripherals certified broken or unusable. This material is usually set apart for reuse, resale, salvage, recycling, or disposal. Arrangements for the collection of the condemned e-waste in the college and disposal through Andhra Pradesh Technology Services Ltd, Government of Andhra Pradesh, are made.

5. *Achras zapota* – Sapota (Sapotaceae)
6. *Thespesia populnea* – Ganga Ravi (Malvaceae)
7. *Cocos nucifera* – Coconut (Arecaceae)
8. *Tectona grandis* –Teak ( Verbenaceae)
9. *Aloe vera* - Kalabanda (Asphodlaceae)
10. *Pongamia pinnata* - Kanuga (Fabaceae)
11. *Azadirachta indica* – Neem (Meliaceae)
12. *Millingtonia hartensis* - Rama bhanam (Bignoniaceae)
13. *Duranta repens* – Duranta (Verbenaceae)
14. *Anthocephalus cadamba* - Kadamba (Rubiaceae)
15. *Polyalthia longifolia* - Nara mamidi (Annonaceae)
16. *Salvia splendens* - Sage Plant (Lamiaceae)
17. *Terminalia catappa* – Almond (Combretaceae)
18. *Psidium gua* – Gua (Myrtaceae)
19. *Coccinia indica* - Donda (Cucurbitaceae)

**1. Teacher explaining the plants in the College Campus.**

2. **Teacher with Students at outside the college campus.**

3. **Abutilon indicum plant.**

**4. Holarrhena antydysenterica an important medicinal plant.**

**5. Crotalaria juncea at hill station.**

**6. Sun God Temple at near hill station.**

After all identifying all the plants through the way, finally moved to Sun God Temple and had Darshan. Then we returned back to our College by 1.00 pm. The students felt very happy with small field trip but with lot of fun, josh and enjoyment. The collected plants are used for Herbarium preparation by the students. What ever the plant species explained by Teacher, the students recorded the names of plants and submitted in the practical classes for corrction.


**1. Visiting Sri Satyanarayana Nursery gardens by Staff and Students.**

Surprisingly we found a Pteridophte by name Equisetum grown in the garden. Some Ornamental plants are designed as different animal shapes. Observed shade nets and green houses which are necessary for growing heat sensitive plants in the Nursery. Large number of Coconut trees and Teak trees are grown in rows in a beautiful manner. Almost 2 and half an hour time was spent in the garden for seeing the plants and the layout of the garden upto 1.30 pm and then moving on visit another garden Sri Satyadeva Nursery.

**2. Students observing the Equisetum plant. 3. Equisetum plant habit.**

4. Lecturer explaining the types of Vegetation


5. Staff and Students under Green House

**Lunch Break:**

We arranged a Local person to bring meals to every student and completed our lunch there itself in Sri Satyadeva Nursery.

**Sri Satyadeva Nursery:**

We met Dr. Ramakrishna Pulla, the young Managing Director of Nursery and had harmonious talks about the Nursery as he was already known to me at FDP program, Bapatla. He gave a wonderful talk by showing the variety of plant species and Bonsai art of designing, grown in his Nursery at Kadium.


**6. Staff and Students at Sri Satyadeva Nursery.**

We entered this garden by 2.15 pm and observed all the plant species by walk. It is huge and very big nursery with variety of species. Not only the Ornamental plants, but fruit yielding plant species such as Mango, Gua, Sapota and other varites are grown. Drip irrigation system is practiced for watering the plants. Grafting experiments are carried out with Mango and Gua to produce good yielding varieties. We found Bonsai plants here and explaned about the art of Bonsai plant production.

The Bonsai plants are produced in the Nursery by practicing the training even from forein countries and young scientists are doing the art of Bonsai and producing the plants. The root system of such plants are also designed in formation of beautiful structures.

With association of Nursery, there were farmers who are making saplings in the packets for supply of different varieties of plants in the separate fields and arranged them in rows in a beautiful manner.

All types of plants such as Aquatic species, Bambu varietis, Bougainvillea varieties, Ficus varieties.

**7. Farmers in the field at Sri Satyadeva Nursery.**

**8. Interaction with Farmers**

It also a centre for study on Taxonomy, Horticulture, Agriculture, Ecology, Ecosystem biology, and Forest Management Systems.

**9. Plants bautifully designed at Sri Satyadeva Nursery.**

The garden is very beautifully maintained with varieties of Bougainvillea, Ficus varieties and other plants and managed in Systematic manner. It gives us an immense pleasure while walking in the Garden. It contains an impressive collection of various plants and incredible trees. The botanic garden is is really center for research purpose in the field of agriculture, botany, taxonomy and also it is a pleasant place to recreate, wander and look at. We spent most of the time here upto 4.00 pm and then returned back from Nursery to Railway station, Rajahmundry. We caught our return train and reached Yellamanchili by 7.30 pm with lot of memories and josh.

**Summary & Conclusion:**

Nature, the God given garment to the people on the Earth. Learning of science from first hand information through observation at the field is much important in making the subject unforgetable and long-life understanding. Such practical activity is provided to students by organizing field trips. These help in relating the concepts with actual life of the students. Thus the trip for field study at Kadium Nurseries, a famous gardens in East Godavari, AP played greater role for students to appreciate nature, and learn more about plants.

Medicinal plants in his home. We brought 08 students along with us and showed all the plants grown in his home.

The forests present in Rajakodur are very good Biodiversity rich centres. Well diversified plant species are present in which rare medicinal plants are reported. Some animal species are also reported. The same project is useful for our Biology students as a Field trip to study and identify the Flora and Fauna of the Rajakodur Forests.

**1. First day visit of Rajakodur with two team members and students.**

**2. Recording the medicinal plant names and uses.**

**3. Medicinal plants present in M. Venkataramana home, a Practitioner.**

**4. M. Venkataramana Explaining about the medicinal plants & Drugs.**

The medicinal plants grown in Sri M. Venkataramana home:

1. ***Curcuma longa*** **- Zingiberaceae**
2. ***Zingiber officinale*** **- Zingiberaceae**
3. ***Adhatoda vassica*** **- Acanthaceae**
4. ***Achyranthus aspera*** **- Amaranthaceae**
5. ***Oldenlandia umbellate*** **- Rubiaceae**
6. ***Aloe vera*** **- Asphodelaceae**
7. ***Cassia occidentalis*** **- Caesalpinaceae**
8. ***Azadirachta indica*** **- Meliaceae**
9. ***Origanum majorina*** **- Lamiaceae**
10. ***Artimesia vulgaris*** **- Asteraceae**
11. ***Cymbopogon citrates*** **- Poaceae**
12. ***Hibiscus rosa-sinensis*** **- Malvaceae**
13. ***Psidium guava*** **- Myrtaceeae**
14. ***Musa paradisiaca*** **- Musacae**
15. ***Withania somnifera*** **- Solanaceae**
16. ***Ocimum sanctum*** **- Lamiaceae**
17. ***Cocos nucifera*** **– Arecaceae**

*18. Citrus limon* – **Rutacae**

*19. Ricinus communis* - **Euphorbiaceae**

The Plant species identified in the Forest:

1. ***Leucas aspera*** **– Lamiaceae**
2. ***Solanum suratense*** **- Solanaceae**
3. ***Boerhavia diffusa*** **– Nyctaginaceae**
4. ***Bambusa arundinacea*** **- Poaceaae**
5. ***Acalypha mercurialis*** **-** Euphorbiaceaae
6. ***Borassus flabellifer*** **- Arecaceae**
7. ***Helicters isora*** **-**
8. ***Nelumbo nucifera*** **– Nelumbonaceae**
9. ***Cissus quadrangularis*** - **Vitaceae**
10. ***Abutilon indicum*** **- Malvaceae**
11. ***Strychnos nuxvomica*** **- Loganiaceae**
12. ***Clitoria ternatea*** **– Fabaceae**
13. ***Jatropa gossipifolia*** **- Euphorbiaceae**

**5. Staff and Students in the forest**

**6. Staff and Students interacted with the local people.**

***Solanum nigrum***

***Helicteres isora***

***Jatropa gossipifolia*** ***Clitoria ternatea***

In the second day, Dr. B. Chandramouli, Lecturer in Botany, Dr. T. Bhushan Rao, Lecturer in Zoology too collaborated with Committee member Dr. A. Srinivasarao and went to Forest by taking students (09) from III B.Sc CBZ. The students used to record the type of plant and animal species present in the forest by doing survey in the Forest.


7. **Staff and Students in the forest to study Flora and Fauna.**


8. **The Committee members in the field.**

The Animals identified in the Forest:

1. *Chamaeleo calyptratus* – Chamaeleonidae
2. *Naja naja* – Elapida
3.

Animal species present in the  Forest

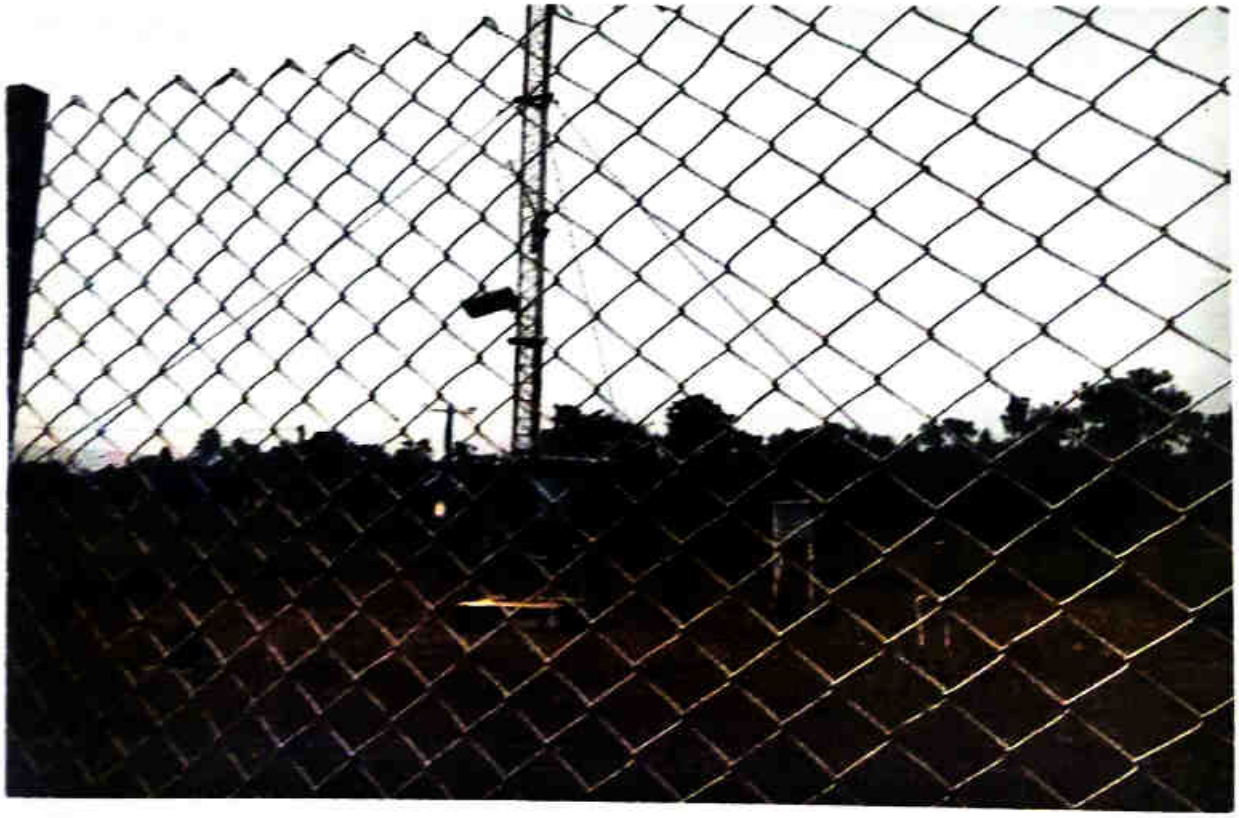
Interaction with local tribe

Farmer selling Tobacco in local Market

**Biodiversity team and students in the Raja kodur Village.**

We interacted with local people and extracted the ayurvedic information related to treatment of diseases and snake bites etc which leds the new study called Ethnobotany. After complete studycarried out in the the village we all returned to our home and compiled all the plants recorded in the forest for future study.

**2. Senior Scientist Dr. Gangadhar garu in his office.**



**3. Rain guage units in the prohibited area with fencing.**

Then the entire team is moving to see the Red gram crop in the separate fields.

The scientist trying to produce pest resistent and water resistent crop varieties and *Cajanus cajan* a high yielding variety is cultivated in more than one acre in the field to study characteristics of crops

**4. Moving to Red gram fields with the students.**

**5. Staff and students in a row to Red gram fields.**

. *Cajanus cajan* (Red gram variety) crop in flowering & fruiting stage.

7. Explaining about the Red gram crop.

Staff Showing the Sesame crop fruiting.

9.*Cajanus cajan* plant-Observation of fruits.

10. *Phaseolus mungo* plant

**11. *Pennisetum typhoideum* (Bajra).** **12. *Sesamum indicum* flowering (Sesame)**

Dr. Gangadhar garu explained about Red gram variety duration of crop, time of flowering and fruiting. The type of diseases attacked and their controlling methods were also explained. Along with Red gram, other crops such as Sesame and Bajra crops are also cultivated and explained the methods of cultivation and their life cycles by showing those crops practically in the fields. The students interacted well and asked some doubts, which were clarified by the scientists working in the fields. Finally we saw Special succulent plants Cactus called Echinopsis, a Thorny Xerophyte.

13. Interation with the Scientist Dr. Gangadhar garu.

14. Echinopsis - AThorny Xerophyte noticed ( Cactus).

15. Intera ction of Scientist Dr. Gangadhar garu with students.


16. A group photo with Scientists at Agricultural research station.

**The following plants are identified in the College campus.**

1. *Enterolobium saman* – Rain Tree (Mimosaceae)
2. *Syzygium jambolina* – Goose berry (Myrtaceae)
3. *Dalbergia latifolia* – Rose wood (Fabaceae)
4. *Bauhinia purpurea* – Deva kanchana (Caesalpinaceae)
5. *Achras zapota* – Sapota (Sapotaceae)
6. *Thespesia populnea* – Ganga Ravi (Malvaceae)
7. *Cocos nucifera* – Coconut (Arecaceae)
8. *Tectona grandis* –Teak ( Verbenaceae)
9. *Aloe vera* - Kalabanda (Asphodlaceae)
10. *Pongamia pinnata* - Kanuga (Fabaceae)
11. *Azadirachta indica* – Neem (Meliaceae)
12. *Millingtonia hartensis* - Rama bhanam (Bignoniaceae)
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18. *Psidium gua* – Gua (Myrtaceae)
19. *Coccinia indica* - Donda (Cucurbitaceae)

**1. Students recording the Plants in the College Campus.**

2. **Paddy Crop near the Penjeruvu**

3. **Students writing the Plants present on the side of Lake**

*4. Calotropis gigantia*

*5. Aerva lanata*

**5. Farmers with baskets full of fodder**

6. **Farmers going to their home with fodder.**

Finally we reached Sri Durga Temple near Penjeruvu and sat there for about half an hour. There we discussed with some moral stories. I gave a challenge to my students, when you missed in the forest, If Tiger comes and ready to attack you. What is going to do?.

I explained the Bhibhacha rasa, one of the Navarasas to escape from the dangerous situation. Like that several stories and happy moments shared among ourselves .

By 4.30 pm we started returning to our College back and finally reached our College by 5.00 pm from there all are dispersed to their respective homes.

1. **Students recording the Plants explained by Botany faculty.**

**The following plants are identified in outside of the College campus.**

1. *Aerva lanata* – Pindi kura (Amaranthaceae)
2. *Tephrosia purpurea* - Vempali ( Fabaceae)
3. *Achyranthes aspera* – Uttareni (Amaranthaceae)
4. *Sida acuta* – (Malvaceae)
5. *Cassia occidentalis* - Kasivinda (Caesalpinaceae)
6. *Parthenium hysterophorus* – Congress Weed (Asteraceae)
7. *Abutilon indicum* - Tutturu benda (Malvaceae)
8. *Sapindus emarginatus* - Soap nut (Sapindaceae)
9. *Tamarindus indica* - Tamarind (Caesalpinaceae)
10. *Holarrhena antydysenterica* – Ankudu (Apocynaceae)
11. *Ficus hispida* - Brahma Medi (Moraceae)
12. *Acalypha indica* – Kuppinta (Euphorbiaceae)
13. *Anisomeles malabarica* - Rana bheri (Lamiaceae)
14. *Cucurbita maxima* – Gummadi (Cucurbitaceae)
15. *Hibiscus ovalifolius* – Wild stock Rose (Malvaceae)
16. *Mangifera indica* - Mango (Anacardaceae)
17. *Moringa oleifera* - Drumstick (Moringaceae)
18. *Passiflora foetida* - Creeping Vine (Passifloraceae)
19. *Calotropis gigantia* - Jilledu (Asclepiadaceae)
20. *Cassia elata* – (Caesalpinaceae)

21. *Crotalaria juncea* - Janumu (Fabaceae)

22. *Lantana camera* – Verbenaceae

23. *Carica papaya* –Boppayi –Euphorbiaceae

24. *Plumbago Zeylanica* - Chitra mulam – Plumbaginaceae

25. *Nelumbo nucifera* – Lotus (Nelumbonaceae)

26. *Ipomoea aquatica* – Convolvulaceae

We reached the Penjeruvu lake by 3.0 pm and started walking towards the lake by seeing all plants on road side. At the Penjeruvu Lake bank area, some important medicinal plants identified such as *Holarrhena antydysenterica, Plumbago Zeylanica, Abutilon indicum, Calotropis, Argemone, Datura* etc. We identified Tree species, some climers and creepers and fruit yielding plants.

**2. Identification of plants at Penjeruvu lake**

**3. Students writing the Plants present on the side of Lake**

4. Argemone mexicana

*5. Datura metel*

5. **Penjeruvu Lake with Nelumbo plants**

Finally we reached Sri Durga Temple near Penjeruvu and sat there for about half an hour. There we discussed with some moral stories. I gave a challenge to my students, when you missed in the forest, If Tiger comes and ready to attack you. What is going to do?.

I explained the Bhibhacha rasa, one of the Navarasas to escape from the dangerous situation. Like that several stories and happy moments shared among ourselves .

By 4.30 pm we started returning to our College back and finally reached our College by 5.00 pm from there all are dispersed to their respective homes.

identified. Then we attended technical session at seminar hall at FSI. Dr. Bhami Reddy, Senior scientist has explained about Trawling techniques and different types of fishes present in the ocean. There were separate ships such as shikari. After completion of technical session, we went to Museum by 12,30pm. The students observed all types of fish specimens and some sea snakes, which are identified and recorded in their field notes. Then we move to harbor and entered inside of INS shikari. The captain of the ship and his personnel explained about fish trawling, Harvestation and storage of fishes in the ship itself. By 1.30 it was completed and came to Andhra University, at which we had Lunch by 2.00pm. Then we all moved to VUDA Park at which we noticed plant diversity which includes ornamental plants and some Gymnosperms. After that we all were went to Ramakrishna beach and spent much time to enjoy the beach breezes. Some Molluscan shells collected by students and also observed some algal members. The students enjoyed lot at RK Beach up to 5.00pm and we returned to Yellamnchili by 6.30pm.

**The following plants were identified in the FSI region.**

1. *Cocos nucifera* – Coconut (Arecaceae)
2. *Aloe vera* - Kalabanda (Asphodlaceae)
3. *Duranta repens* – Duranta (Verbenaceae)
4. *Anthocephalus cadamba* - Kadamba (Rubiaceae)
5. *Polyalthia longifolia* - Nara mamidi (Annonaceae)
6. *Salvia splendens* - Sage Plant (Lamiaceae)
7. *Araucaaria araucana* - Gymnosperm
8. *Juniperos chinensis* - Gymnosperm
9. *Thuja sinensis* – Gymnosperm
10. *Areca catechu* - Arecaceae


The Staff and students at FSI, Visakhapatnam.

**Dr. B. Chandramouli, Lecturer in Botany Explaining about Phytodiversity at FSI, Visakhapatnam.**

***Thuja sinensis***

***Juniperus chinensis***

***Araucaria araucana***

***Areca catechu***

**Some ornamental plants in the FSI, Visakhaptnam**


Dr. B. Chandramouli, lectuer in Botany with students at Department of Botany

Dr. J. Prakasa Rao, Research Scholar explained the specimens in the Botany Museum.

Dr.H. Murali Krishna, Research Scholar explained the specimens in the Botany Museum.

Dr. J. Prakasa Rao, Research Scholar explained about Herbarium in Botany Department.

Dr. J. Prakasarao explained the layering method of propagation

Our team members with Prof. Ratnakumar, Head of the Department of Botany


Dr. B. Chandramouli and team members and III CBZ students at Horticulture Department, AU Campus


Dr. B. Chandramouli, Lecturer in Botany , Sri G. Satyanarayana, Lecturer in English and students in AU Campus.

After that we all were went to Ramakrishna beach and spent much time to enjoy the beach breezes. Some Molluscan shells collected by students and also observed some algal members. The students enjoyed lot at RK Beach upto 4.30pm and we returned back to Yellamanchili by 6.30pm.

# S.G.A.GOVERNMENT DEGREE COLLEGE

(Re-accredited by NAAC with 'A' Grade, Affiliated to Andhra University)

YELLAMANCHILI - 531055, ANDHRA PRADESH

## *WOMEN EMPOWERMENT CELL*

Women Empowerment Cell Organised One day seminar on **Women Rights –Prospects and challenges** on 14-08-2017