HINDU COLLEGE – GUNTUR

STUDENT CENTRIC METHODS

2.3.1(QLM)

DEPARTMENT OF BOTANY

EXPERIANTIAL LEARNING

COMMUNITY OUTREACH PROGRAMME

LAB SESSIONS

FIELD VISITS

2018-2019

HINDU COLLEGE – GUNTUR
STUDENT CENTRIC METHODS
2.3.1(Q_LM)

COMMUNITY OUTREACH PROGRAMME

SNO	ACTIVITY	DATE	DURATION hrs/days	No. of Participants
2018-19				
4	PATRI PLANTS DISTRIBUTION	12-09-2018	ONE DAY	52

LABORATORY SESSIONS

INDEX

S.No.	Name of The Activity	Date	Duration hrs/days	No. of Participants
2018-19				
2	LAB EXPERIMENT ON "BACTERIAL STAINING"			28

FIELD VISITS

INDEX

S.No.	Name of The Activity	Date	Duration hrs/days	No. of Participants
2018-19				
2	FIELD TRIP TO ANU	21-01-2019	ONE DAY	50
3	FIELD VISIT TO HC PHARMA MEDICINAL GARDEN AND DRUG MUSEUM	04-02-2020	ONE DAY	15

HINDU COLLEGE – GUNTUR
STUDENT CENTRIC METHODS
2.3.1(Q_LM)

Exhibition of Patri Plants

Title of the Event **:** Exhibition of Patri

Date : 12-09-2018

Venue : Hindu College, Botany Department

Co-ordinator : K. V. S. Durga Prasad

No. of Staff members involved : 02

No. of Students involved **:** 50

Objective of the Event: The event is conducted by Botany Department the main moto of the event is to distribute parti plants are used in Ganesha puja and their importance of patri plants.

Plan of Execution: There are 21 types of parti plants.

1.Bilva Patri 2. Tulasi Parti 3.Datura 4. Arjuna 5. Pomegranate 6.Bermuda grass 7. Deodar 8. Mango 9. Jammi 10. Regu 11. Uttareni 12.Ganneru 13.Arati 14. Jilledu 15.Tellamaddi 16.Devadaru 17. Maruvam 18. Sami 19. Machi patram 20. Bruhatipatra 21.0 Vishnu Kantra. All the plants are collected from various places with the support of students and staff all these 21 plants are properly packed in a polythene bag and distributed 500 families every year we do this practice in the botany department.

Out come: This event was become successful.

HINDU COLLEGE – GUNTUR
STUDENT CENTRIC METHODS

2.3.1(Q_LM)

HINDU COLLEGE – GUNTUR
STUDENT CENTRIC METHODS
2.3.1(Q_LM)

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STUDENT CENTRIC METHODS
2.3.1(Q_LM)

LAB EXPERIMENT ON "BACTERIA STAINING"

2018-19

Name of the Event: Lab experiment on Bacteria staining

Venue : Botany Lab -1

Co-ordinator : Dr. M. Madhavi

No. of students participated : 28

Objective of the event: To identify the gram positive and gram negative strain, the bacteria are two types. The application of crystal violet and then the iodine, we have to wash with alcohol. If the **violet** colour remains as it is it is called **gram$^+$;** after adding sufranin , the violet is replaced by **red** this is called **gram$^-$.**

Out come of the event: The students got practical knowledge in separating the bacteria into gram positive and gram negative type. This type of separation is very useful to study the Economic and its type study.

HINDU COLLEGE – GUNTUR
STUDENT CENTRIC METHODS
2.3.1(Q_LM)

FIELD TRIP TO ANU

Title of the Event **:** Field Trip

Date : 21-01-2019

Venue : A.N.U., Campus

Co-ordinator : Dr. M. Madhavi

Resource Person : K.Nirmala Kumari

No. of Staff members involved : 02

No. of Students involved **:** 48

Objective of the Event : Plant identification, naming and Herbarium preparation.

Plan of Execution: The staff and students actively involved in the field visit Dr.K. Raju garu explained the plant identification keys and Herbarium preparation methods. Explained the importance of different plants in the Herbal Botanical Garden A.N.U. the plants available are Ashwagandha, Allium sativvum, vitex negundo, stinging nettle, chamomile, acapuko, Bawang, Bayabas, Sambong, Tsaang-gubat etc. all these plants are explained in brief and the economic, medicinal and timber yielding.

Out come of the Event: The students are very happy in learning about the identification keys, and also interaction with the university professors and gained a lot of knowledge.

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STUDENT CENTRIC METHODS
2.3.1(Q_LM)

Visit to HC PHARMA COLLEGE
Medicinal Garden & Drug Museum

Title of the Event : Visit to Medicinal Garden and Drug Museum of Hindu College of Pharmacy, Amaravathi Road,Guntur.
Date: 07-02-2020
Venue : Hindu College of Pharmacy, Amaravathi Road,Guntur
Co-ordinator : Dr. M. Madhavi
No. of Staff members involved: 02
No. of Students involved: 15
Objective of the Event:To bring the awareness on the medicinal plants and develop drug museum.
Plan of Execution: Earlier we have taken the permission from Department of Pharmacy,Hindu college, Guntur, for the final BZC students. We have a paper on Ethanobotany & Ethanomedicine. That'swhy to develop field &practical knowledge we taken them to HC Pharma College. The professors explained various medicinal plants & also shown the Drug museum and lab equipment.
Outcome of the Event: Students got motivated on the medicinal plants & Drug museum and learned the techniques .

HINDU COLLEGE – GUNTUR
STUDENT CENTRIC METHODS
2.3.1(Q_LM)

VISIT TO HINDU COLLEGE OF PHARMA
ON 04-02-2020

Visit to Medicinal Garden & Drug museum

HINDU COLLEGE – GUNTUR

STUDENT CENTRIC METHODS

2.3.1(QLM)

DEPARTMENT OF BOTANY

PARTICIPATIVE LEARNING

ASSIGNMENTS

WEB ASSIGNMENTS

GROUP DISCUSSIONS

SEMINARS

2018-2019

HINDU COLLEGE – GUNTUR
STUDENT CENTRIC METHODS
2.3.1(Q_LM)

INDEX

ASSIGNMENTS

S.NO	TOPIC	No. of Participants
	2018-19	
6	Ultra structure of Bacteria	5
7	Thallus organization in Algae	5
8	General Characters of Algae	5
9	General Characters of Bryophytes	5
10	Pinus Needle & Reproduction	5

WEB ASSIGNMENTS

S.No.	Name of the Topic	No. of students Participated
	2018-19	
4	Evolution of sporophytes in Bryophytes	**1**
5	Systematic study & economic importance of Brassicaseae	**1**
6	Heterospory and seed habit	**1**

GROUP DISCUSSIONS

Sl.No.	Name of the Topic	No.of Participants
	2018-2019	
1	Plant breeding	4
2	Whittaker's five kingdom concept	4
3	Structure of DNA	4

SEMINARS

SNO	TOPIC	DURATION hrs/days	No. of Participants
2018-19			
6	Marchantia	10min	1
7	Prokaryotic cell structure	10min	1
8	Types of Polination	10min	1
9	Types of Mutations	10min	1
10	Insitu & Exsitu conservation	10min	1

HINDU COLLEGE – GUNTUR
STUDENT CENTRIC METHODS
2.3.1(Q_LM)

INDEX

ASSIGNMENTS

S.NO	TOPIC	No. of Participants
	2018-19	
6	Ultra structure of Bacteria	5
7	Thallus organization in Algae	5
8	General Characters of Algae	5
9	General Characters of Bryophytes	5
10	Pinus Needle & Reproduction	5

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S.No.	Name of the Topic	No. of students Participated
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4	Evolution of sporophytes in Bryophytes	**1**
5	Systematic study & economic importance of Brassicaseae	**1**
6	Heterospory and seed habit	**1**

HINDU COLLEGE – GUNTUR
STUDENT CENTRIC METHODS

2.3.1(Q_LM)

Group Discussion::2018-2019

Topic : " PLANT BREEDING (r-DNA)"

Title of the Event : Plant breeding (r-DNA)
Venue : Botany lab
Co-ordinator : Dr. M. Madhavi
No. of Staff members involved : 01
No. of Students involved : 04

Objective of the event: The students of 4th semester are divided into 3 groups, discussing about recombination of DNA by enzymes. They discussed about DNA damage and repair mechanism, they themselves prepared DNA model by paper board material.

Outcome of the event: This type of discussion is very useful for them in theory exams and also it is a self learning method.

HINDU COLLEGE – GUNTUR
STUDENT CENTRIC METHODS
2.3.1(Q_LM)

Topic : "WHITTAKER'S FIVE KINGDOM CONCEPT"

Title of the Event : "Whittaker's five kingdom concept"
Venue : Botany lab
Co-ordinator : K.V.S. Durga Prasad
No. of Staff members involved : 01
No. of Students involved : 04

Objective of the event: The students divided into groups and each group of 4 students discussed about 5 kingdom classification purposed and animal. The Animalia group is divided into heterotrophic based on food habit. This type of classification has given a clear information in separating the plants and animal group.

Group discussions:

Monera - bacteria Protista - unicellular Fungi- Mushroom, moulds
Plantae - All plants Animalia - All animals

Outcome of the event: This group discussion has given a good knowledge to students in sharing the information among them. This is the very useful for improving communication skills.

HINDU COLLEGE – GUNTUR
STUDENT CENTRIC METHODS

2.3.1(Q_LM)

Topic : "STRUCTURE OF DNA"

Title of the Event : "STRUCTURE OF DNA"
Venue : Botany lab
Co-ordinator : Dr. M. Madhavi
No. of Staff members involved : 01
No. of Students involved : 04
Objective of the event : To study the structure of DNA

Discussion: The students are seriously discussing on DNA structure, the DNA has two strands which run in opposite directions of 3^1 to 3^1, rotate in right-handed helix, maintaining construct distance between the base pairs at 3.4˚ A, it has purines and pyramidines of A-G; T-C; which continue at A=T: G=C. The nitrogen base pairs are maintaining their constant structure.

Outcome of the event: This group discussion has given a good knowledge to students in sharing the information among them. This is the very useful for improving communication skills.

HINDU COLLEGE – GUNTUR
STUDENT CENTRIC METHODS

2.3.1(Q_LM)

2018-19

Name of the Department: Botany
Student name: T. Kasi reddy
Topic: Marchantia.
Duration: 10 mins
No. of students attended: 18

Synopsis: Marchantia: Marchantia is a genus of liverworts in the family Marchantiaceae and the order Marchantiales. The thallus of Marchantia shows differentiation into two layers: an upper photosynthetic layer with a well-defined upper epidermis with pores and a lower storage layer. The thallus features tiny cup-like structures called gemma cups, containing gemmae, small packets of tissue that are used for asexual reproduction. The combination of barrel-shaped pores and the circular shape of the gemma cups are diagnostic of the genus. Multicellular purple coloured scales with single cell thickness and unicellular rhizoids are present on the ventral surface of the thallus.Marchantia can reproduce both sexually and asexually. Sexual reproduction involves sperm from antheridia on the male plant fertilizing an ovum (egg cell) in the archegonium of a female plant. The antheridia and archegonia are borne atop special gametophore stalks called antheridiophores and archegoniophores, respectively. These are borne on separate thalli and thus the plants are dioicous. All three phyla of bryophytes share a typical plant life cycle characterized by the alternation of multicellular haploid and diploid stages.

HINDU COLLEGE – GUNTUR
STUDENT CENTRIC METHODS
2.3.1(Q_LM)

Name of the Department: Botany
Student name: M. Laasya Priya
Topic: Prokaryotic cell structure
Duration: 10 mins
No. of students attended: 16

Synopsis: Prokaryotic cell structure: Prokaryotic cells are single-celled microorganisms known to be the earliest on earth. Prokaryotes include Bacteria and Archaea. The photosynthetic prokaryotes include cyanobacteria that perform photosynthesis.

A prokaryotic cell consists of a single membrane and therefore, all the reactions occur within the cytoplasm. They can be free-living or parasites.

A prokaryotic cell does not have a nuclear membrane. However, the genetic material is present in a region in the cytoplasm known as the nucleoid. They may be spherical, rod-shaped, or spiral.

A prokaryotic cell structure is as follows:

Capsule– It is an outer protective covering found in the bacterial cells, in addition to the cell wall. It helps in moisture retention, protects the cell when engulfed, and helps in the attachment of cells to nutrients and surfaces.

Cell Wall– It is the outermost layer of the cell which gives shape to the cell.

Cytoplasm– The cytoplasm is mainly composed of enzymes, salts, cell organelles and is a gel-like component.

Cell Membrane– This layer surrounds the cytoplasm and regulates the entry and exit of substances in the cells.

Pili– These are hair-like outgrowths that attach to the surface of other bacterial cells.

Flagella– These are long structures in the form of a whip, that help in the locomotion of a cell.

Ribosomes– These are involved in protein synthesis.

Plasmids– Plasmids are non-chromosomal DNA structures. These are not involved in reproduction.

HINDU COLLEGE – GUNTUR
STUDENT CENTRIC METHODS
2.3.1(Q_LM)

Name of the Department: Botany
Student name: K. Mani kumar
Topic: Types of pollination.
Duration : 10 mins
No. of students attended : 17

Synopsis: Types of pollination:

Pollination: Pollination is defined as the pre-fertilization event or process, where pollen grains from anther are transferred to the stigma of a flower. The majority of flowering plants reproduce sexually i.e., through seed formation. We know sexual reproduction is incomplete without fertilization. The male and female gametes have to meet for fertilization and further development. Have you ever wondered how plants ensure their continuity on earth despite their immobile nature? Let us answer the same by having a brief discussion on a process called pollination.

Types of Self-pollination and Cross-pollination:

Pollinations can occur either within a flower or between flowers of the same plant or flowers of different plants. Depending on this, pollinations are of three types, namely:

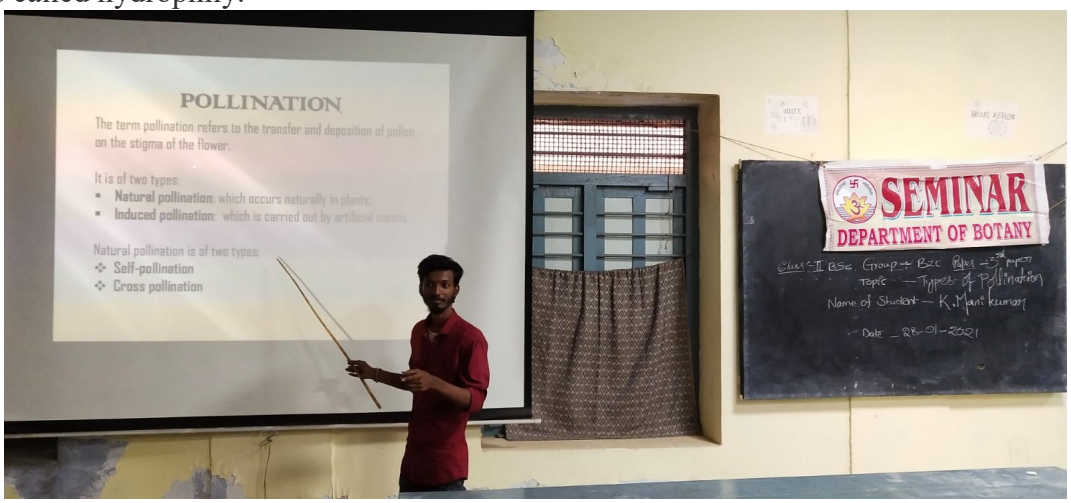
- **Autogamy**
- **Geitonogamy**
- **Xenogamy**

Pollinating Agents:

Plants utilise both biotic and abiotic agents for pollination.

Biotic agents – Animals, insects, butterflies, etc. Pollination by insects is called entomophily and pollination by birds is called ornithophily. Pollination by vertebrates is known as zoophily.

Abiotic agents – Wind and water. Wind pollination is known as anemophily and pollination by water is called hydrophily.



HINDU COLLEGE – GUNTUR
STUDENT CENTRIC METHODS
2.3.1(Q_LM)

Name of the Department: Botany
Student name : I. Ramya
Topic :Types of Mutations
Duration: 10 mins
No. of students attended: 14

Synopsis: Types of mutations:

Mutations:A change in the sequence of bases in DNA or RNA is called a mutation. Does the word mutation make you think of science fiction and bug-eyed monsters? Think again. Everyone has mutations. In fact, most people have dozens or even hundreds of mutations in their DNA. Mutations are essential for evolution to occur. They are the ultimate source of all new genetic material - new alleles - in a species. Although most mutations have no effect on the organisms in which they occur, some mutations are beneficial. Even harmful mutations rarely cause drastic changes in organisms.

Types of Mutations: There are a variety of types of mutations. Two major categories of mutations are germline mutations and somatic mutations.

Germline mutations: occur in gametes. These mutations are especially significant because they can be transmitted to offspring and every cell in the offspring will have the mutation.

Somatic mutations: occur in other cells of the body. These mutations may have little effect on the organism because they are confined to just one cell and its daughter cells. Somatic mutations cannot be passed on to offspring.

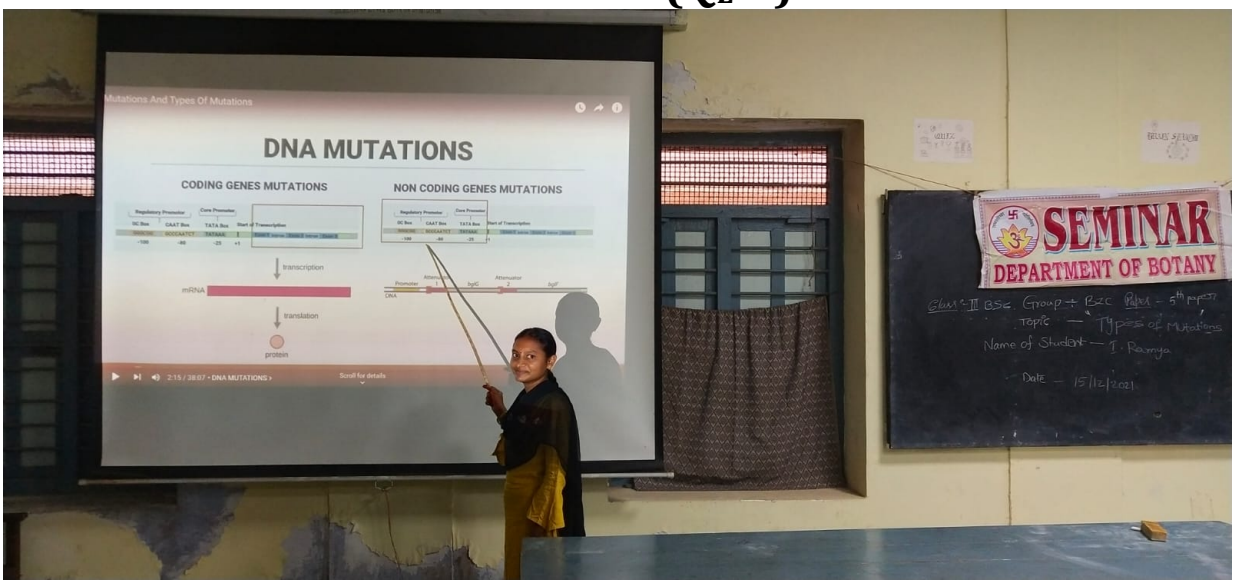
Chromosomal alterations: are mutations that change chromosome structure. They occur when a section of a chromosome breaks off and rejoins incorrectly or does not rejoin at all.

Point mutation: is a change in a single nucleotide in DNA. This type of mutation is usually less serious than a chromosomal alteration. An example of a point mutation is a mutation that changes the codon UUU to the codon UCU.

Frameshift mutation is a deletion or insertion of one or more nucleotides that changes the reading frame of the base sequence. Deletions remove nucleotides, and insertions add nucleotides. Consider the following sequence of bases in RNA: AUG-AAU-ACG-GCU = start-asparagine-threonine-alanine.

HINDU COLLEGE – GUNTUR
STUDENT CENTRIC METHODS

2.3.1(Q_LM)



HINDU COLLEGE – GUNTUR
STUDENT CENTRIC METHODS
2.3.1(Q_LM)

Name of the Department: Botany
Student name: B. Vishnu naik
Topic: In- situ and Ex-situ conservation.
Duration: 10 mins
No. of students attended: 08

Synopsis: In situ and Ex situ conservation:

We all need to conserve biodiversity, as it leads to the conservation of essential ecological diversity to preserve the continuity of food chains. In-situ and Ex-situ conservation are the two strategies practised for the preservation of a variety of living species globally.

In situ conservation:

It is the methods of conserving all the living species, especially the wild and endangered species in their natural habitats and environment. In-situ conservation of Biodiversity includes biosphere reserves, national parks, wildlife sanctuaries, etc.

Ex situ conservation:

It is the methods of conserving all the living species in the artful habitats that reflect their natural living habitats. Examples of ex-situ conservation of biodiversity include aquariums, botanical gardens, cryopreservation, DNA banks, zoos, etc.

HINDU COLLEGE – GUNTUR

STUDENT CENTRIC METHODS

2.3.1 (QLM)

DEPARTMENT OF BOTANY

PROBLEM SOLVING

CHARTS & WORKING MODELS

STUDENT PROJECT WORKS

QUIZ ON BOTANY SUBJECT

2018-2019

HINDU COLLEGE – GUNTUR
STUDENT CENTRIC METHODS
2.3.1(Q_LM)

INDEX
LIST OF CHARTS & MODELS

SNO	NAME OF THE CHART/WORKING MODEL	No of Charts
	2018-19	
5	**T.S of Anther**	**1**
6	**Cucurbitaceae**	**1**
7	**Annonaceae**	**1**
8	**DNA(model)**	**1**

STUDENT PROJECTS

SNO	ACTIVITY	PRINCIPAL INVISTIGATOR	No. of Participants
	2018-19		
3	A STUDY ON HERBAL MEDICINE FOR ALL OF HINDU COLLEGE	KVS DURGA PRASAD	03
4	A STUDY ON ISOLATION AND ENUMERATION OF BACTERIA FROM AIR	Dr. M. MADHAVI	03

QUIZ ON BOTANY SUBJECT

SNO	ACTIVITY	DATE	DURATION hrs/days	No. of Participants
	2018-19			
2	Quiz on Botany subject on the occasion of Dr.T.S.Ramarao's death anniversary (An Inter Collegiate Botany Quest on botany subject)	21-12-2018	ONE DAY	150

HINDU COLLEGE – GUNTUR
STUDENT CENTRIC METHODS
2.3.1(Q_LM)

HINDU COLLEGE – GUNTUR
STUDENT CENTRIC METHODS
2.3.1(Q_LM)

HINDU COLLEGE – GUNTUR
STUDENT CENTRIC METHODS
2.3.1(Q_LM)

A STUDY ON HERBAL MEDICINE FOR ALL OF HINDU COLLEGE

V.Sangeetha, M.Sagar, T.Narendra Reddy
3rd BZC Students

Project submitted to
The Research committee
HINDU COLLEGE
GUNTUR

Project Guide
SRI K.V.S. DURGA PRASAD
HOD
Department of Botany
HINDU COLLEGE
GUNTUR

Department of Botany
HIDNDU COLLEGE
GUNTUR
December - 2017

DEPARTMENT OF BOTANY,
HINDU COLLEGE,
GUNTUR

This is to certify that the project entitled “Herbal plants for all” submitted by V. Sangeetha, M. Sagar, T. Narendra Reddy incorporates the bonafied project work carried out by the in the Department of Botany, Hindu College, under my supervision. This work has not been previously submitted.

K.V.S. Durga Prasad
HOD
Department of Botany
Hindu College, Guntur.

Department of Botany
HINDU COLLEGE
GUNTUR.

DECLARATION

We declare that the present work entitled "Herbal plants for all" submitted to research committee Hindu College is a bonafied work done by us under the supervision of Sri KVS Durga Prasad, HOD in the Department of Botany, Hindu College, and this work has not submitted earlier in any other institution

Place: Guntur

V. Sangeetha
M.Sagar
T.Narendra Reddy

CONTENTS

PROJECT ON HERBAL MEDECINE FOR ALL

ABSTRACT:

Herbal drug is botanical medicine or phytomedicine, refers to using a plant's seeds, berries, roots, leaves, bark, or flowers for medicinal purposes. Herbalism has a long tradition of use outside conventional medicine. It is becoming more mainstream as improvements in analysis and quality control, along with advances in clinical research, show the value of herbal medicine in treating and preventing disease. The development of drugs from plants continues, with drug companies engaged in large-scale pharmacologic screening of herbs. Herbal medicine is also called phytomedicine.

INTRODUCTION:

In the early 19th century, when chemical analysis first became available, scientists began to extract and modify the active ingredients from plants. Later, chemists began making their own version of plant compounds and, over time, the use of herbal medicines declined in favor of drugs. Almost one fourth of pharmaceutical drugs are derived from botanicals. Recently, the World Health Organization estimated that 80% of people worldwide rely on herbal medicines for some part of their primary health care. Whole herbs contain many ingredients, and they may work together to produce a beneficial effect. Many factors determine how effective an herb will be. For example, the type of environment (climate, bugs, and soil quality) in which a plant grew will affect it, as will how and when it was harvested and processed. However, herbal supplements must be made according to good manufacturing practices.

Globally popular herbal medicines

A number of different cultures rely on traditional methods of medicine that have been passed on from one generation to another. Here are some famous herbal medicines that are used all across the world. Some of the herbal medicine and uses are listed below:

Turmeric (*Curcuma longa*)

Turmeric has been used in cooking and medicine for ages. It is known to have anti-inflammatory properties. It treats chronic inflammation, pain, anxiety and helps with metabolic syndrome. It is also effective in treating arthritis pain and acts as a herbal alternative for medicines like ibuprofen. Dried forms are also used in curries.

Turmeric

- **Ginger (*Zingiber officinale*)**

We can eat ginger fresh and dried; however, it is thought the best way to have ginger as a medicine is in your tea or as a capsule. It has a number of different compounds that treat cold, nausea, migraines and also high blood pressure. It is still used to treat nausea related to pregnancy and chemotherapy.

Ginger

***Mentha spicata* (Mint)**

Mints are aromatic, almost exclusively perennial herb. They have wide-spreading underground and overground stolons and erect, square, branched stems. Mints will grow 10–120 cm (4–48 inches) tall and can spread over an indeterminate area. Due to their tendency to spread unchecked, some mints are considered invasive.

The leaves are arranged in opposite pairs, from oblong to lanceolate, often downy, and with a serrated margin. Leaf colors range from dark green and gray-green to purple, blue, and sometimes pale yellow.

Mint has been long known as an herbal remedy, **easing queasy stomachs, calming stress and anxiety, and promoting restful sleep**. Peppermint tea has long been viewed as an excellent way to ease an upset stomach, calming the digestive tract and alleviating indigestion, gas, and cramps.

BASIL : (***Ocimum basilicum)***

Basil has antiviral and anti-inflammatory properties that can help fight several viral infections. A study revealed that basil contains compounds like apigenin and ursolic acid, which is effective on herpes, hepatitis B, and enterovirus.

Basil

FENNEL SEEDS: (*Foeniculum vulgare)*

The main compound of fennel seeds is trans-anethole, which is found to be quiet effective against herpes viruses. The small seeds also boost your immunity and decrease inflammation in the body.

Fennel seeds

GARLIC: (*Allium sativum)*

Garlic is a superfood and is used for preparing medicines for various health conditions. Studies suggest that garlic can be effective against influenza A and B, HIV, HSV-1, viral pneumonia, and rhinovirus.

Table 1. List of selected 20 Indian traditional medicinal plants

Sr. No	Btanical name	Abb	Family	Local name	Part used	Traditional use
1	*Abrus precatorius* Linn	*Ap*	Fabaceae	Gunj	Lf	Hepatic disorder
2	*Aegle marmelos* Linn.	*Am*	Rutaceae	Bael	Fr	Hepatic disorder
3	*Andrographis paniculata* Nees.	*Ap*	Acanthaceae	Kadu kirayat	Lf	Immunomodulation
4	*Asparagus racemosus* Willd.	*Ar*	Asparagaceae	Shatawari	Rt	Hepatic disorder
5	*Azadirachta indica* A. Juss	*Ai*	Meliaceae	Kadunimb	Lf	Diabetes
6	*Berberis aristata* DC	*Ba*	Berberidaceae	Daru halad	Rt	Hepatic disorder
7	*Boerhaavia diffusa* Linn	*Bd*	Nyctaginaceae	Punarnava	Rt	Anti-aging
8	*Curcuma longa* Linn.	*Cl*	Zingiberaceae	Halad	Rt	Diabetes
9	*Glycyrrhiza glabra* Linn.	*Gg*	Fabaceae	Jeshthmadh	Rt	Immunomodulation
10	*Mentha Arvensis* Linn.	*Ma*	Lamiaceae	Pudina	Lf	Hepatic disorder
11	*Murraya koenigii* Linn.	*Mk*	Rutaceae	Kadhi patta	Lf	Diabetes
12	*Ocimum sanctum* Linn.	*Os*	Lamiaceae	Kali tulas	Lf	Hepatic disorder
13	*Phyllanthus emblica* Linn.	*Pe*	Euphorbiaceae	Awala	Fr	Diabetes
14	*Syzygium cumini* Linn.	*Sc*	Myrtaceae	Jambul	Sd	Diabetes
15	*Terminalia arjuna* Roxb.	*Ta*	Combretaceae	Arjun satada	Br	Cardiac disorder
16	*Terminalia bellirica* Roxb.	*Tb*	Combretaceae	Behada	Sd	Diabetes
17	*Terminalia chebula* Retz.	*Tche*	Combretaceae	Hirda	Sd	Hepatic disorder
18	*Tinospora cordifolia* Miers	*Tcord*	Meninspermaceae	Gulvel	Br	Diabetes
19	*Trigonella foenum-graecum*	*Tf*	Fabaceae	Methi	Sd	Diabetes
20	*Withania Somnifera* Linn.	*Ws*	Solanaceae	Ashwagandha	Rt	Stress

Abb - Abbreviation used. Lf - Leaf. Fr - Fruit. Rt - Root. Sd - Seed. Br - Bark

PROCEDURE:

The herbs available in most stores come in several different forms: teas, syrups, oils, liquid extracts, tinctures, and dry extracts (pills or capsules). we can make teas from dried herbs left to soak for a few minutes in hot water(Fig.1), or by boiling herbs in water and then straining the liquid. Syrups, made from concentrated extracts and added to sweet-tasting preparations, are often used for sore throats and coughs. Oils are extracted from plants and often used as rubs for massage, either by themselves or as part of an ointment or cream. Tinctures and liquid extracts are made of active herbal ingredients dissolved in a liquid (usually water, alcohol, or glycerol). Tinctures are typically a 1:5 or 1:10 concentration, meaning that one part of the herb is prepared with 5 to 10 parts (by weight) of the liquid. Liquid extracts are more concentrated than tinctures and are typically a 1:1 concentration. A dry extract form is the most concentrated form of an herbal product (typically 2:1 to 8:1) and is sold as a tablet, capsule, or lozenge.

Fig:1 Preparation of tea from dried herbs

CONCLUSIONS:

Health care providers must take many factors into account when recommending herbs, including the species and variety of the plant, the plant's habitat, how it was stored and processed, and whether or not there are contaminants (including heavy metals and pesticides). Herbal medicine is used to treat many conditions, such as allergies, asthma, eczema, premenstrual syndrome, rheumatoid arthritis, fibromyalgia, migraine, menopausal symptoms, chronic fatigue, irritable bowel syndrome, and cancer, among others. It is best to take herbal supplements under the guidance of a trained provider. For example, one study found that 90% of people with arthritic use alternative therapies, such as herbal medicine. Herbs can help treat a variety of conditions, and in some cases, may have fewer side effects than some conventional medications. Some herbs may cause allergic reactions or interact with conventional drugs, and some are toxic if used improperly or at high doses. Taking herbs on your own increases your risk, so it is important to consult with your doctor or pharmacist before taking herbal medicines.

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HINDU COLLEGE – GUNTUR
STUDENT CENTRIC METHODS

2.3.1(Q_LM)

A STUDY ON ISOLATION AND ENUMERATION OF BACTERIA FROM AIR

A. Venkata Dayal, T. Saroja, Kavitha Krishna
3rd BZC Students

Project submitted to
The Research committee
HINDU COLLEGE
GUNTUR

Project Guide
Dr. M. Madhavi, M.Sc., M.Phil., Ph.D.
Department of Botany
HINDU COLLEGE
GUNTUR.

Department of Botany,
HIDNDU COLLEGE
GUNTUR
November - 2018

DEPARTMENT OF BOTANY
HINDU COLLEGE
GUNTUR

This is to certify that the project entitled "Isolation and enumeration of bacteria from air" submitted by A. Venkata Dayal, T. Saroja, Kavitha Krishna incorporates the bonafied project work carried out by the in the Department of Botany, Hindu College, under my supervision. This work has not been previously submitted.

Dr. M. Madhavi, M.Sc., M.Phil., Ph.D.
Department of Botany
HINDU COLLEGE
GUNTUR.

Department of Botany
HINDU COLLEGE
GUNTUR.

DECLARATION

We declare that the present work entitled "Isolation and enumeration of bacteria from air" submitted to research committee Hindu College is a bonafied work done by us under the supervision of Dr. M. Madhavi in the Department of Botany, Hindu College, and this work has not submitted earlier in any other institution

Place: Guntur

A. Venkata Dayal,
T. Saroja,
Kavitha Krishna

CONTENTS

ISOLATION AND ENUMERATION OF BACTERIA FROM AIR

ABSTRACT:

This study was conducted to isolate and identify bacteria air in our college lecture rooms using the spared plate technique. The studied areas include postgraduate lecture room and main hall of botany. A total of 25 samples were collected during the course of this study. The isolated bacterial species were identified *as Staphylococcus aureus, E. coli, Streptococcus species* and *Bacillus subtilis.* These pathogens could be linked with several infections such as gastrointestinal tract infections, these findings would alert the students, staff and workers to these pathogens and their existence in our lecture rooms.

INTRODUCTION:

In microbiology, the term isolation refers to the separation of a strain from a natural, mixed population of living microbes.

Traditionally microbes have been cultured in order to identify the microbe(s) of interest based on its growth characteristics. Depending on the expected density and viability of microbes present in a liquid sample, physical methods to increase the gradient as for example serial dilution or centrifugation may be chosen.

Laboratory technicians inoculate the sample onto certain solid agar plates with the streak plate method or into liquid culture medium, depending what the objective of the isolation is: If one wants to isolate only *a particular* group of bacteria, such as Group A Streptococcus from a throat swab, one can use a selective medium that will suppress the growth of concomitant bacteria expected in the mix (by antibiotics present in the agar), so that only Streptococci are "selected", i.e. visibly stand out. If one wants to isolate *as many or all* strains possible, different nutrient media as well as enriched media.

To enumerate the growth, bacteria can be suspended in molten agar before it becomes solid, and then poured into petri dishes, the so-called 'pour plate method' which is used in environmental microbiology and food microbiology (e.g. dairy testing) to establish the so-called 'aerobic plate count'. After the sample is inoculated into or onto the choice media, they are incubated under the appropriate atmospheric settings, such as aerobic, anaerobic or microaerophilic conditions or with added carbon dioxide (5%), at different temperature settings, for example 37 °C in an incubator or in a refrigerator for cold enrichment, under appropriate light, When bacteria have visibly grown, they are often still mixed. The identification of a microbe depends upon the isolation of an individual colony, as biochemical testing of a microbe to determine its different physiological features depends on a pure culture.

Materials and Methods:

Sampling Site this study was carried out at Hindu college Guntur. The samples were collected from different PG Lecture room and MHS.

Media Preparation: The media used were prepared according to the standard protocol

Type of medium: Nutrient agar medium

Composition of nutrient medium:

Nutrient agar is a general purpose liquid medium supporting growth of a wide range of non-fastidious organisms. It typically contains (mass/volume):

- 0.5% peptone - this provides organic nitrogen
- 0.3% beef extract/yeast extract - the water-soluble content of these contribute vitamins, carbohydrates, nitrogen, and salts
- 1.5% agar - this gives the mixture solidity
- 0.5% sodium chloride - this gives the mixture proportions similar to those found in the cytoplasm of most organisms
- distilled water - water serves as a transport medium for the agar's various substances
- pH adjusted to neutral (6.8) at 25 °C (77 °F).

These ingredients are combined and boiled for approximately one minute to ensure they are mixed and then sterilized by autoclaving, typically at 121 °C (250 °F) for 15 minutes. Then they are cooled to around 50 °C (122 °F) and poured into Petri dishes which are covered immediately. Once the dishes hold solidified agar, they are stored upside down and are often refrigerated until used. Inoculation takes place on warm dishes rather than cool ones: if refrigerated for storage, the dishes must be rewarmed to room temperature prior to inoculation.

Results: The present study was conducted to isolate and identify airborne bacteria in some selected lecture rooms within the Hindu college. A total of 25 samples were collected during the course of this study Overall, 25 bacteria were isolated comprising of *Staphylococcus aureus, Streptococcus spp, E. coli and Bacillus subtilis* (Table 3; fig. 1). Staphylococcus aureus has the highest percentage occurrence of 68% followed by Streptococcus species (56%) E. coli (40%) and while Bacillus subtilis recorded the least 16% (Table 3). These pathogens could be linked with several infections such as gastrointestinal tract, respiratory tract, urinary tract and skin disorders.

Table: 1 Percentage frequency of occurrences of the isolated bacteria

s.no	Name of organism	Frequency	Percentage of occurrence
1	*Staphylococcus aureus*	17	68
2	*Streptococcus spp.*	14	56
3	*E. coli*	10	40
4	*Bacillus spp.*	4	16

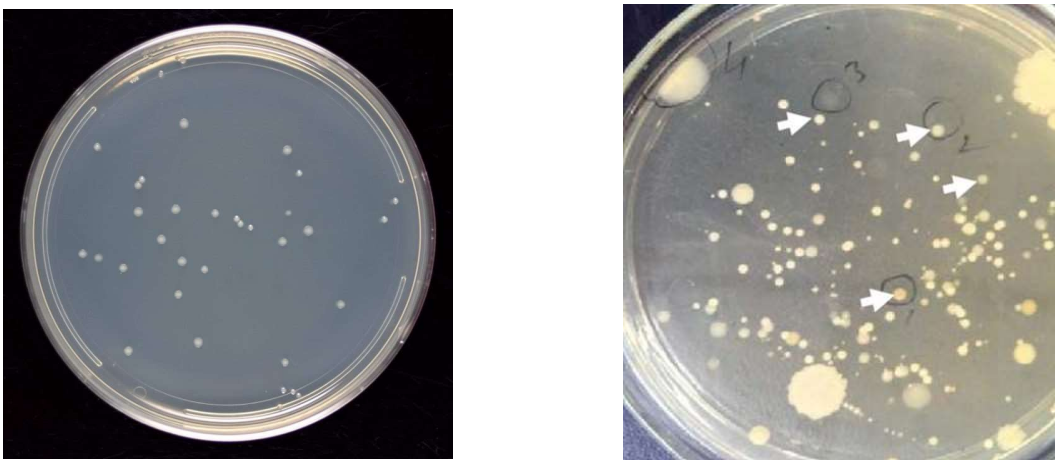

Fig.1 isolation of bacteria on nutrient agar from air

Conclusions:

Using the natural spread plate technique, 25 bacterial species were isolated in this study. Four genera of the organisms have been isolated comprising of Staphylococcus aureus, Streptococcus spp, E. coli and Bacillus subtilis. And these organisms can cause several infections to the students and staff. In order to develop the quality of indoor air in our lecture room buildings overcrowding has to be avoided, good ventilation systems has to be designed and good hygiene practice must be observed. \

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HINDU COLLEGE – GUNTUR
STUDENT CENTRIC METHODS
2.3.1(Q_LM)

Name of the Event: Quiz on Botany subject on the occasion of Dr.T.S.Ramarao's death anniversary (An Inter Collegiate Botany Quest on botany subject)

Date : 21-12-2018

Venue : Botany Department

Co-ordinator : K.V.S. Durga Prasad

Chief Guest : Dr. Chukka Yesuratnam, Seniormost Botany faculty, Guntur

No. of Staff members involved : 05

No. of Students participated : 150

Objective of the Event: On the occasion of Legendary personality, Dr.T.S. Ramarao's, death anniversary conducted quiz on botany subject through the interaction among the students of different colleges.

Plan of Execution: On the occasion of Dr.T.S.Ramarao death anniversary all the botany staff members and students gathered in the botany department and discussed and remembered about the services rendered by Dr. T. S. Ramarao garu to the botany department, also his sincersity and honesty. On this day we conducted quiz, elocution to the students. And also distributed 1st, 2nd and 3rd prizes to the students.

Outcome of the Event: The students and staff felt very happy in remembering the greatness Dr.T.S. Ramarao garu. The students got much interaction with all the staff members.

HINDU COLLEGE – GUNTUR
STUDENT CENTRIC METHODS
2.3.1(Q_LM)

An encomium to Dr.T.S. Ramarao Garu

Dr.T.S. Ramarao Garu is a distinguished educationist. He Joined as a lecturer in Dept of Botany HinduCollege Guntur in 1956 after a strenuous job Retired as a HOD of the same dept. in 1992.

He is well known in AP& Telengana as an author of text books of Botany and as an excellent coach for EMCET Botany. He was Titan with Qualities of leadership, scholarship, discipline, devotion, broad mindedness, and liberal outlook. A great conversationist with kaleidoscopic interest in diverse topics from cricket to music and had an art of engaging every one with ease and comfort. His Artisstic ability is reflected in his "Illustrations of flora of Sagar". An honest person to the core with the courage to speak out truth that's embarrassing. He was a great teacher and his teaching exuded his command over the subject mixed with wit and wisdom. He was an electrifying person in the Botany dept with lively discussions on varied topics. He never took leave unless and until it was compelling. He left a great legacy of values in the dept which had profound influence on staff & students. His teaching of taxonomy & Plant Physiology was memorable, invoking interest in the minds of students to learn further in the subject. An expert in plant identification he was consulted by botany fraternity of various colleges and universities as well as forest dept officers. Before concluding I can extol the greatness of Dr. T.S. Ramarao Garu as "A Colossus that strode the domain of botany faculty by stature and a fine gentleman by nature".

K.V.S. Durga Prasad
H.O.D.
98481 10174
durgaprasad.katrapati@gmail.com

Organising Committee :
Dr. M. Madhavi Lect. in Botany
M.V. Padmaja Lect. in Botany

HINDU COLLEGE - GUNTUR
Department of Botany
Dr. T. S. Rama Rao Memorial
Inter Collegiate Botany Quest - 2018

21-12-2018
Venue : Dept. of Botany
9 A.M.

You are Cordially invited to the inter Collegiate Competitions in **Essay writing, Elocution, Quiz and Spot Painting** regarding Botany Subject on the Eve of **Dr. T.S. Rama Rao death anniversary.**

Botany is the Scientific Study of plants. The study of plants is important because they are a fundamental part of life on earth, generality food, oxygen, fuel, medicine. and fibers that allow other life forms to exist. Plants need our attention to sustain in environment because modern Civilization is interfering with their natural habitats. To bring awareness regarding the importance of botany and its prospects among the students, our Botany Dept. Conducting these Competitions.

Bottom line we absolutely require plants for our own existence, so might as well know a thing or two about them.

Sri G. Madhu
Principal

Rules and Regulation

- Degree Botany Students alone are eligible and all the events will be conducted on the topics related to Botany at Degree Level.
- Two Persons Can Participate in each event and Similarly two teams are allowed for quiz.
- You must attend to the Competition with an authorization letter from the Head of the institution or Department.
- To avoid overlapping and Confusion one person should Participate only in one event. All the events begin at the same time and will be finished on the same day.
- Working lunch will be Provided only to the Participants.
- Please Confirm your Participation on or before 19th December either by mail/Post/Phone.
- Participants must attend the event by 9 AM Sharp at the Venue i.e., Dept. of Botany.
- Competitions will begin by 10AM on 21st December 2018.
- Cash Prizes, Mementos, Certificates will be Presented to the winners in the evening valedictory function.
- No TA and DA is Provided. No entry fees is required
- Topics for essay Writing, elocution and Spot Painting will be announced at 9AM on 21st December.
- Host Team will Also Participate in the events and won't claim the Prizes.
- **Cash Prize details :**
  Essay writing Elocution, Spot Painting
  1st Prize - 1000/-
  2nd Prize - 500/-
  3rd Prize - 250/-
  Quiz - 3000, 1500 and 750 respectively.
- **Organizers decision is ultimate**

Essay Writing :
- Participants can write either in Telugu or in English and the time given for it is one hour
- Paper will be given by the institution.

Elocution :
- Participant can speak either in Telugu / English and maximum time given is 5min

Spot Painting :
- Participants must use only brush and water colors and Duration of the event is 2hrs.
- Organizers will Provide the Drawing Sheet

Quiz :
- 3 members can Participate in the event.
- Prelims will be conducted by written exam.
- Questions will be asked in both Telugu and english medium on Botany subject only.

SALUTATIONS TO OUR BOTANY FRATERNITY

C. Venkatrao 1936-48 | C. Rama Krishnarao 1937-72 | G. G. Krishna Murthy 1947-85 | M.V.R. krishna Murthy 1947-85 | Dr. T.S. Rama Rao 1956-85

C. Sambaiaha 1966-2002 | D. Raja Rao 1969-1993 | A. Ramarao 1972-2005 | C.V.K.R. Ramarao 1972-2006 | D. Venkateswara Rao 1974-1999

K. Ramakrishna 1972-2009 | V. Jaya 1981-2013 | Dr. B.R.C. Murthy 1984-2017 | Dr. M. Vijaya Koteswari 1984-2017

HINDU COLLEGE – GUNTUR
STUDENT CENTRIC METHODS
2.3.1(Q_LM)

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STUDENT CENTRIC METHODS
2.3.1(Q_LM)

ఈనాడు అమరావతి

శనివారం 22 డిసెంబరు 2018 ★ 20 పేజీలు

స్ఫూర్తిదాయకంగా అంతర్ కళాశాలల పోటీలు

గుంటూరు సాంస్కృతికం, న్యూస్‌టుడే: స్థానిక హిందూ కళాశాల వృక్షశాస్త్ర విభాగ ఆధ్వర్యంలో శుక్రవారం జిల్లా స్థాయి పోటీలు స్ఫూర్తిదాయకంగా జరిగాయి. దివంగత డాక్టర్ టి.ఎస్.రామారావు స్మారకంగా ఈ పోటీలను నిర్వహించారు. వ్యాసరచన, వక్తృత్వం, చిత్రలేఖనం, క్విజ్ పోటీలు జరిగాయి. 18 కళాశాలల నుంచి 150 మంది విద్యార్థులు పాల్గొన్నారు. పోటీల ఓవరాల్ ఛాంపియన్‌షిప్‌ను గోరంట్ల సెయింట్ ఆన్స్ కళాశాల విద్యార్థినులు గెలుచుకున్నారు. కార్యక్రమాలను వృక్షశాస్త్ర విభాగాధిపతి కె.వి.ఎన్.దుర్గాప్రసాద్ నిర్వహించారు. బహుమతి ప్రదానోత్సవ సభలో గుంటూరు మాజీ మేయర్ చుక్కా ఏసురత్నం పాల్గొని డాక్టర్ టి.ఎస్. రామారావు సేవలను కీర్తించారు. కార్యక్రమంలో కళాశాల పాలకమండలి అధ్యక్షుడు ఎన్.వి. ఎన్.సోమయాజి, ప్రిన్సిపల్ గొల్లపూడి మధు, అధ్యాపకులు డాక్టర్ మాధవి, వసుంధర, వి.జయ, పి.వి.కె.రామారావు పాల్గొన్నారు. అతిథులు విజేతలకు బహుమతులు అందించారు.

మాట్లాడుతున్న చుక్కా ఏసురత్నం

సాక్షి 24/7 అమరావతి

శనివారం 22-12-2018

GREATER AMARAVATHI

గరిష్టం 30.0° / కనిష్టం 20.0°

హిందూ కళాశాలలో అంతర్ కళాశాలల బోటనీ క్వెస్ట్

సెయింట్ ఆన్స్ కళాశాల విద్యార్థుల ఓవరాల్ చాంపియన్ షిప్

విద్యార్థినులకు ట్రోఫీ బహుకరిస్తున్న చుక్కా ఏసురత్నం, ఎస్వీఎస్ సోమయాజి

గుంటూరు ఎడ్యుకేషన్: ఐదు దశాబ్దాలపాటు బోటనీ అధ్యాపకుడిగా వేలాది మంది విద్యార్థులను తీర్చిదిద్దిన డాక్టర్ టీఎస్ రామారావు బహుగ్రంథ రచయితగా, నైతిక విలువలతో జీవించిన ఆదర్శమూర్తి అని నగర మాజీ మేయర్ చుక్కా ఏసురత్నం పేర్కొన్నారు. మార్కెట్ సెంటర్లోని హిందూ కళాశాలలో బోటనీ విభాగ ఆధ్వర్యంలో డాక్టర్ టీఎస్ రామారావు మెమోరియల్ అంతర్ కళాశాలల బోటనీ క్వెస్ట్-2018 పేరుతో జిల్లాస్థాయి వ్యాసరచన, వక్తృత్వ, పెయింటింగ్, క్విజ్ పోటీలు నిర్వహించారు. పోటీల అనంతరం జరిగిన బహుమతి ప్రదానోత్సవంలో ముఖ్య అతిథిగా పాల్గొన్న ఏసురత్నం మాట్లాడుతూ శాస్త్ర విజ్ఞానంలో బోటనీకి ప్రత్యేక స్థానమున్నదని అన్నారు. ప్రతిభా పాఠవ పోటీ పరీక్షలు విద్యార్థుల మనో వికాసానికి, ఉన్నతికి దోహదపడతాయని పేర్కొన్నారు. సభకు అధ్యక్షత వహించిన కళాశాల ప్రిన్సిపల్ ఎస్వీఎస్ సోమయాజి మాట్లాడుతూ రామారావు లాంటి లబ్ధ ప్రతిష్ఠులైన అధ్యాపకులు అనేక విభాగాల్లో పని చేసి కళాశాలను జిల్లా, రాష్ట్రంలో ఉన్నతంగా నిపారని కొనియాడారు. పోటీల నిర్వాహకులు డాక్టర్ కేవీఎస్ దుర్గాప్రసాద్ మాట్లాడుతూ జిల్లాస్థాయిలో 18 కళాశాలల నుంచి 150 మంది విద్యార్థులు పాల్గొనగా, గోరంట్లలోని సెయింట్ ఆన్స్ కళాశాల విద్యార్థినులు ఓవరాల్ చాంపియన్ షిప్ సాధించారన్నారు.

HINDU COLLEGE – GUNTUR
STUDENT CENTRIC METHODS
2.3.1(Q_LM)

ప్రజాశక్తి
గుంటూరు
శనివారం
డిసెంబర్ - 22
2018
16 పేజీలు

విజేతలకు బహుమతి ప్రదానం చేస్తున్న చుక్కా ఏసురత్నం

విజ్ఞాన గని డిటివిఎస్ రామారావు

నగర మాజీ మేయర్ చుక్కా ఏసురత్నం

ప్రజాశక్తి-గుంటూరు

దాదాపు ఐదు దశాబ్దాల బోటనీ అధ్యాపకులుగా వేలాది మందిని తీర్చిదిద్దిన డాక్టర్ డిఎస్ రామారావు బహుగ్రంథ రచయితగానూ, నైతిక విలువలతో, ఆదర్శ జీవితం గడిపిన గొప్ప వ్యక్తి అని గుంటూరు నగర మాజీ మేయర్ చుక్కా ఏసురత్నం పేర్కొన్నారు. స్థానిక హిందూ కాలేజిలో శుక్రవారం బోటనీ విభాగం ఆధ్వర్యంలో డాక్టర్ డిఎస్ రామారావు మెమోరియల్ ఇంటర్ కాలేజియట్ బోటనీ క్వెస్ట్-2018 పేరుతో జిల్లా స్థాయి వ్యాసరచన, వక్తృత్వ, పెయింటింగ్, క్విజ్ పోటీలు నిర్వహించి విజేతలకు బహుమతులు, ప్రశంసాపత్రాలు అందచేశారు. ఈ సందర్భంగా జరిగిన సభకు కళాశాల ప్రిన్సిపల్ ఎస్‌విఎస్ సోమయాజి అధక్షత వహించారు. డాక్టర్ కెవిఎస్ దుర్గారావు, డాక్టర్ మధు, మాధవి, రామారావు, పద్మజ, వి.జయ, తదితరులు మాట్లాడుతూ రామారావు సేవల్ని కొనియాడారు.

విశాలాంధ్ర
గుంటూరుజిల్లా

శనివారం 22 డిసెంబరు 2018 — 12 పేజీలు

ఇంటర్ కాలేజియేట్ బోటనీ క్వెస్ట్ బహుమతుల పంపిణీ

విశాలాంధ్ర-గుంటూరుప్రతినిధి : హిందూ కళాశాలలో బోటనీ అధ్యాపకునిగా పనిచేసిన విజ్ఞానగని కీ.శే డాక్టర్ డిఎస్ రామారావు స్మృత్యర్థం రామారావు మెమోరియల్ ఇంటర్‌కాలేజియేట్ బోటనీ క్వెస్ట్-2018' పేరుతో హిందూ కళాశాలలో జిల్లా వ్యాప్తంగా నిర్వహించిన వ్యాసరచన, వక్తృత్వ పెయింటింగ్, క్విజ్ పోటీలలో గెలుపొందినవారికి మాజీ మేయర్ చుక్కా ఏసురత్నం బహుమతులు అందించారు. శుక్రవారం హిందూ కళాశాలలో నిర్వహించిన ముగింపు కార్యక్రమంలో ముఖ్య అతిథిగా హాజరైన ఏసురత్నం మాట్లాడుతూ రామారావు యాభై ఏళ్ల అధ్యాపకునిగా సేవలు అందించి, వేలాదిమందిని తీర్చిదిద్దిన రామారావు పేరిట ఏర్పాటుచేసిన ఈ క్విజ్ పోటీలు స్ఫూర్తిదాయకమని తెలిపారు. శాస్త్ర విజ్ఞాన రంగంలో బోటనీకి ప్రత్యేక స్థానం ఉందని, ప్రతిభా పోటీలు విద్యార్థులకు మనోవికాసానికి, ఉన్నతికి దోహదపడతాయని పేర్కొన్నారు. సభకు అధ్యక్షత వహించిన కళాశాల ప్రిన్సిపాల్ ఎస్‌వీఎస్ సోమయాజులు మాట్లాడుతూ రామారావు వంటి లబ్ధ ప్రతిష్ఠులైన అధ్యాపకులు అనేక విభాగాలలో సేవలు అందించి కళాశాల పేరుప్రతిష్ఠలను ఇనుమ డింపచేశారని కొనియాడారు. నిర్వాహకులు డాక్టర్ కేవీఎస్ దుర్గాప్రసాద్ మాట్లాడుతూ జిల్లాస్థాయిలో 18 కళాశాలల నుంచి 150 మంది విద్యార్థులు పాల్గొన్నట్లు తెలిపారు.

విద్యార్థులకు బహుమతులు అందజేస్తున్న ఏసురత్నం

గేరంట్ల సెయింట్ అన్స్ కళాశాల విద్యార్థులు ప్రథమ బహుమతులు గెలుచుకున్నట్లు తెలిపారు. కార్యక్రమంలో ప్రిన్సిపాల్ ఎం.మధు, బోటనీ అధ్యాపకురాలు డాక్టర్ ఎం.మాధవి, ఎం.పద్మజ, వి.జయ, నీటికే రామారావు పాల్గొన్నారు.